STORIES OF INTERESTING PLACES IN THE INDUSTRY

AN EDITOR ON WHEELS

WASHINGTON—CAPITAL OF THE NEW WORLD

By **George F. Taubeneck**

Classical Stone

If all the stone columns in Washington, D. C., were placed one on top of another, the view from the top would be dandy.

Since the dawn of nationalism, rulers have felt, and rightly, that architectural splendor, memorial trappings, and magnificent surroundings at the seat of government help maintain national stability, traditions, and pride.

Consequently, the city named after our first president is well decked out in classical stone and heroic sculpture, as befits the capital of the New World.

It is well that there have been prosperous periods in American history. A 1932 visitor to the dazzlingly ornamented Library of Congress might begin to think in terms of how much distress could be alleviated with the vast sums expended upon this Venetial palace.

But when Mr. 1932 visitor sees the Washington monument and Lincoln Memorial at night he will be thankful that there have been times when the nation could afford to spend money for the edification of posterity. No man-made structures in North America can match these two monuments—especially when seen at night from the "reflecting pool"—for sheer beauty.

* * *

Government Payroll

Some half million people inhabit Washington, D. C. Of these about one-seventh may be classed as government workers.

The more important members of this one-seventh group live in handsomely appointed apartment hotels, and move in social circles almost unrivalled for brilliance in America.

Those who are not on the governmental payroll are largely employed by commercial enterprises which serve government workers. They live in old yellow and red brick structures, get their recreation in the city's 450 parks, and live quite simply. The more prosperous merchants live in typical American fine homes in the northwestern section of the city.

Washington harbors no manufacturing.

Obviously, the most immediately interesting feature of the nation's capital is its men and women—the senators and representatives, the cabinet members, the President and the First Lady, the ambassadors, the justices.

But the men-in-power shift about and are supplanted. None can be included in a "still" picture of Washington—they are subjects rather for moving and talking pictures.

Moreover, these men belong not to Washington, but to the communities whence they came. Their interests are local, not national; expedient and transitory, not permanent.

* * *

The Capitol

Hence for a picture of Washington we turn to its buildings and its monuments, the enduring components which give it personality and which provide the setting for its procession of men and events.

First on every visitor's sightseeing list is the Capitol building. It stands on "the Hill," a site selected by George Washington because it occupied a commanding eminence upon the Potomac plateau.

It consists roughly of a nucleur midsection, a wing for the Senate, a wing for the House or Representatives, a flock of Corinthian columns, arcades, and balustrades, a discouraging array of marble staircases, and a magnificent dome. The Capitol was not built all at one time, but has had sections added onto it over a period of years.

That dome, a cast-iron affair which was the last addition to the Capitol, is as imposing and stately an object as the New World has to offer. Resting on the central building, its peristyle of fluted Corinthian columns flows into the dome proper, culminating in a "lantern" and surmounted by a bronze figure of Freedom which is more than three times as high as a tall man.

From the top of the dome (better take our word for it, because it's a helluva climb) the city spreads out like a rocket-burst. Streets empty into the Capitol grounds from all points of the compass.

Circling the Capitol, one notes, are small parks and a necklace of government buildings. At that height the most striking of the latter are the House office building (quadrangular) and the Senate office building (a horseshoe).

On the ceiling of the dome is a fresco, symbolic of something or other, at which one looks from the circular whispering gallery.

One hundred eighty feet below the dome is the rotunda, which is empanelled with eight oil paintings depicting early American historical events, and statues of Lincoln (2), Washington, Lafayette, Hamilton, Baker, and Grant.

This rotunda is the main entrance to the Capitol. One enters through its decorated bronze doors by climbing a long flight of marble steps and by crossing the portico on which presidential inaugurations are held.

Proceeding from the rotunda toward the Senate wing, one comes across the Supreme Court room, which was formerly the Senate chamber. Contrary to the general Corinthian style of the Capitol, the motif of this room is Ionic.

And Ionic simplicity is in keeping with the dignified and quiet mood of the room.

The justices sit behind a long bar, four on each side of the chief justice. Six of the justices' chairs are tall-backers, upholstered heavily in black leather. The other three, for no apparent reason, are smaller, less pretentious chairs finished in green.

Facing the judges are recording clerks and members of the bar. At the rear are two semicircular bench rows for spectators.

If you can possibly spare a moment, sit in on a hearing before our highest tribunal. You will be amazed at the facility with which the justices can analyze and summarize out loud. Long words, longer sentences, and a remarkable display of sustained and orderly reasoning will likely reward your visit.

A short distance from the Supreme Court room is the Senate chamber. Working from small, heavy, drawered desks, Senators face the vice president's dais in semi-circular rows. Their chamber has a high ceiling and a spectator's gallery. Decorations are in gold and silver.

Usually a large portion of the desks are empty. Those who are present talk to each other, read newspapers, and otherwise occupy themselves while the clerk reads bills rapidly and droningly. Pages in knee breeches loll on each side of the dais.

Underneath the Senate chamber is a restaurant and a barber shop for the Senators—both heavily patronized.

The House of Representatives is a larger edition of the Senate chamber. Representatives do not get desks, only chairs.

Noise and confusion in the House is as much greater than that in the Senate as the disturbance in the Senate is greater than that in the Supreme Court room. And if a theatre were as empty as the rows of House seats usually are, the show would close next day.

It's a polyglot group which convenes there. But on the whole it is composed of handsome specimens—most of them shaggy-headed, ponderous and booming-voiced.

The room which was formerly the Hall of Representatives is now the National Statuary Hall, to which each state may send statues of two of its distinguished sons. Newest and most conspicuous of these is a plaster representation of the late Senator Robert LaFollette of Wisconsin, ready to spring to his feet and enter a debate.

From Florida came to this hall a statue of John Gorrie, M. D., "Inventor of the Ice Machine and Mechanical Refrigeration (1803-1855)."

The domed ceiling of this hall is patterned after that of the Pantheon at Rome. It has amplifying acoustic properties.

* * *

The White House

First of the present collection of Washington public buildings was the White House, home of all U. S. presidents. After being partially burned down by the British in 1914, it was restored and the walls painted white to cover the flame marks.

It is simple, inviting, and homelike, with a well-landscaped lawn. Public gatherings are held in the East Room, Blue Room, Green Room, Red Room, and State Dining Room (the mahogany table has ample space for 100 guests).

The executive offices are west of the White House proper, and connected with the latter by an esplanade.

* * *

Library of Congress

Most individual of all the buildings in Washington is the Library of Congress, repository of almost four million books, including bound volumes of ELECTRIC REFRIGERATION NEWS.

Externally it is just another public building, with a dome, a fountain, and a dizzy flight of stairs at the entrance. (I'm in favor of escalators for all Washington public buildings.)

On the inside, however, is an entrance hall of such rococo magnificence that finding oneself in it is like being transported via magic carpet to Islam. Such gilded and bemuraled grandeur has little in common with the hardy pioneer spirit of America, but belongs—as does the world of books—to a decadent Old World.

The Grand Stair Hall, is constructed of elaborately carved Italian marble, with Corinthian columns, supporting arches, and a vaulted ceiling. Mural paintings representing every conceivable abstraction of knowledge (art, poetry, law, labor, science, music, etc.) riot around the walls and ceiling in colorful profusion.

In rows at the top of the walls are copy-book mottoes, such as: "They are never alone that are accompanied with noble thoughts."

More murals ornament the numerous corridors and lobbies, which also contain exhibits of rare and antique printing, cartography, and the like.

Under the dome is the reading room. In the center of this room is an island, like an information desk in a metropolitan railroad terminal. Surrounding the island are three concentric circles of lighted desks, cut by radiating aisles. At these desks readers face each other.

One pie-cut of the circle is occupied by lighted card index files. Behind archways may be seen three floors of bookstacks. It's the most efficient library arrangement your correspondent has ever seen.

* * *

And So Forth

Other public buildings there are in great quantity. There's the old State, War, and Navy building, which is like a house of blocks made by small boys—a big block house composed of all the different kinds of blocks in the neighborhood—columns piled on top of columns, and so many windows one suspects that the War department might have had a sniper posted at each, looking for the enemy.

Since the Great War, the State Department has been almost the sole occupant of this architectural monstrosity. Army and Navy officials hold down chairs in those emergency "human warehouses" thrown up in six weeks during the war hysteria.

At the Bureau of Printing and Engraving plates and presses turn out our stamps and paper money.

Half of the nation's gold and silver is stored in the vaults of the Treasury Building, which is a Greek architectural classic—three porticoes, rows of Ionic columns supporting graceful pediments, and long colonnades sustaining the roof.

More than 8,000 men work in the immense Department of Commerce Building, which covers three city squares—approximately eight acres.

Designed by Cass Gilbert, a new $5,000,000 home for the Supreme Court is going up.

The Archives Building contains originals of the Declaration of Independence, Articles of Confederation, Constitution, Monroe Doctrine, Emancipation Proclamation, and other precious papers.

Important laboratory labors are conducted at the Bureau of Standards, where more than 1,000 trained scientists are at work testing and measuring.

The Naval Observatory sets the time for all who live East of the Rockies. It is the government's astronomical headquarters, has an extensive library, and is used for testing chronometers.

The Union Station looks like a government building and has an imposing approach which boasts sculptures by St. Gaudens and Lorado Taft. The concourse is larger than the combined concourses of New York City's Pennsylvania and Grand Central terminals.

D. A. R., Red Cross, and Chamber of Commerce buildings are worthy symbols of those organizations.

An architectural gem (showing Latin influence) is the Pan-American Building, dedicated to the lasting peace and friendship of all American nations, and scene of glittering social functions.

On S St. is a replica of one of the Seven Wonders of the Ancient World, the Mausoleum of Halicarnassus, erected by the Scottish Rite Temple of the Thirty-Third Degree Masons. And so on. It will take you a week to "do" them all.

* * *

Smithsonian

If you have only half a day left after exploring the Capitol, Library of Congress, White House, and Lincoln Memorial, forget about the minor attractions listed above. Go to Smithsonian Institute, instead.

In the words of a tablet there:

"The Smithsonian is not a museum. Its main activities are:

"1—To discover, by research and exploration, new facts in science.

"2—To publish such facts for world wide distribution, free.

"It does, however, adminster the U. S. National Museum, as well as six other public bureaus, for the government. These bureaus have all grown out of Smithsonian activities.

"The Smithsonian was founded in 1846 with money given by an Englishman, James Smithson, 'for the increase and diffusion of knowledge among men.' It is a privately supported institution under the trusteeship of the government."

In spite of this pronouncement, Smithsonian does house an absorbing collection of relics. The institution itself is a relic—resembling an old fortress which might have been occupied, and enlarged, successively by Romans, Saracens, Goths, Englishmen, Jesuits, and the men who built early American railroad depots.

Most notable exhibits there are aeronautical, including the "Spirit of St. Louis" in which Lindbergh spanned the Atlantic, early experimental models, and types of 'planes used in the World War—now seeming hopelessly antiquated. Almost equally interesting is the collection of old land vehicles (including a stagecoach loaned Smithsonian by Will Rogers and Fred Stone).

Provocative of imaginative reveries is the row of glass cages containing plaster models of wives of the Presidents, wearing costumes which graced those women during their tenure in the White House.

Cutaway models of mining and manufacturing operations, army and naval collections, model ships, historical studies of industrial arts, printing press used by Ben Franklin, and a beautiful page from the Gutenberg Bible (reputedly first book printed from movable type) are exhibits you won't find in other museums.

If you have time you might look over the associated National Museum (mostly stuffed animals), National Gallery of Art, Freer Gallery of Art, and National Zoological Park.

With a mission similar to that of Smithsonian is the Carnegie Institution, devoted chiefly to applied science. It now fosters the National Academy of Sciences, which faces the Lincoln Memorial.

Not to be omitted in this cultural connection are Brookings Institution (for research in social sciences), National Geographic Society, Corcoran art gallery, Folger Shakespeare Library (an American adaption of Greek architecture to house literature of and about an English author!), American university (Methodist), and old Georgetown university (Jesuit).

Ford's theatre (where Lincoln was assassinated) now contains a fine collection of Lincolnea, and Mt. Vernon (three hours' trip from Washington, D. C.), home of George Washington, has an equally good collection of Washingtonia.

* * *

Mighty Cathedral

Situated on Mount St. Alban is the cathedral of St. Peter and St. Paul (Episcopal). When finished (it was begun in 1907, and will not likely be completed for many years) this cathedral will be exceeded in size only by the Cathedral of St. John the Divine in New York City, and those of Milan and Amiens.

In spirit of conception and manner of execution this Washington cathedral will rank with those of Rheims, Cologne, Notre Dame, Canterbury, York, and Winchester.

There is some indication that it may become an American counterpart of Westminster Abbey, for already it contains the tombs of Woodrow Wilson, Admiral Dewey, and the first bishops of Maryland and Washington.

Fourteenth century Gothic is the style of Washington cathedral. Its "Close" (grounds) cover 67½ acres. Area of the cathedral alone will be 71,000 square feet, laid out in form of a cross. Some 30 auxiliary buildings are planned. Already there are schools for boys, girls, and preachers.

It is estimated that it will cost 10 million dollars to complete this cathedral.

* * *

Heroic Memorials

Four of the city's memorials to the dead are alone worth a trip to Washington. These are the Lincoln Memorial, the Washington Monument, Arlington, and Augustus St. Gauden's statue over the graves of Mr. and Mrs. Henry Adams.

This latter unnamed bronze representation of a shrouded figure contemplating the mystery of the hereafter is one of the great sculptures of all time. It is located in an obscure part of Rock Creek cemetery.

(To Be Continued)

Beauty in the Rain

This striking photograph shows a portion of the Capitol building on a rainy night. Note the reflection on the wet pavement of the majestic dome.

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Merchandising Section

IN TWO PARTS
PART ONE

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EASTERN FORCES ROUT ENEMY IN G. E. WAR DRIVE

All Metropolitan Forces Report Advances In Campaign

CLEVELAND, May 3.—The armies of Refrigerania, concentrated along the metropolitan front, last week delivered a crushing blow to the enemy, Sales Resistance, reports Chief of Staff M. F. Mahony, manager of the merchandising division of the General Electric refrigeration department.

Soldiers enlisted in the Modern Home Utilities field army, under the command of Lieutenant General J. E. Neily, pushed forward at such a rapid pace during the last week of battle that their commander now is creeping up on Generalissimo A. Wayne Merriam.

Lieutenant General Neily, by his progress of the past week, made his army a threatening force which, if future operations are consistent with the latest attacks, may snatch the generalissimo's insignia from Merriam's uniform.

The Modern Home Utilities field army made the largest advance along the metropolitan front—10 miles farther than the troop led by the generalissimo. Soldiers commanded by Lieutenant General Frank Wolf in the Buffalo sector and Lieutenant General Philip H. Harrison in the Newark sector made heavy inroads against the enemy.

All other armies in this division penetrated far into enemy territory, Lieutenant Generals Rex Cole and R. C. McKay leading their troops in a series of assaults that netted many miles of territory.

The longest advance of any of the armies of Refrigerania, however, was made by Lieutenant General L. W. Driscoll in the Charlotte, S. C., sector of the Atlantic front.

A series of relentless attacks upon troops of the opposing force inspired by

(Concluded on Page 4, Column 1)

FADA CHANGES CORPORATE NAME, FUNCTIONS UNITED

LONG ISLAND CITY, N. Y.—A change in the firm name from F. A. D. Andrea, Inc., to Fada Radio and Electric Corp. has been announced by F. A. D. Andrea, president of the corporation.

"This change will in no way affect the present general policies, control, or personnel, and business will continue as usual at the same address, 24 Orchard St., Long Island City," the announcement stated.

At the same time, announcement that the corporation has acquired the business and assets of Andrea Mfg. Co., and

(Concluded on Page 13, Column 1)

WALKER & PRATT MAKES APARTMENT HOUSE RANGE

BOSTON—A new Crawford electric range, designed for use on the top of small electric refrigerators for apartment house installations, is being manufactured and sold by the Walker & Pratt Mfg. Co.

The new product is adaptable to any buffet type refrigerator not over 26.5 in. deep and not exceeding 37 in. in height.

The range in itself is 15⅝ in. high, 26⅜ in. wide, and 23⅛ in. deep. Oven interior measures 12⅛ in. in height, 12 in. in width, and 17⅜ in. in depth. Cooking top dimensions are 11¾ by 21 9-16.

The finish is of white porcelain enamel, with the oven interior of blue porcelain enamel. The oven comes on the right hand side in the standard model, and is equipped with a balanced shelf type door.

KELVINATOR EXPORT HEAD RETURNS FROM TOUR

DETROIT—After a month's absence on a tour to South America and the West Indies, E. H. Wilcox, manager of the export division, Kelvinator Corp., has returned to Kelvinator headquarters.

Lifting the Mortgage

NEW YORK CITY—While waiting for a train at the Grand Central Station, Miss Jeane Adaire, director of home economics for C. M. Eakin's New York Frigidaire Sales organization, fell into conversation with a "red cap," who mentioned the difficulty he was having in paying off the mortgage on his home.

Miss Adaire suggested that an electric refrigerator in his home would, through its economies, help reduce his household operating expenses. The next day the "red cap" called at the Frigidaire 45th St. showroom and placed an order for a 4-cu. ft. model.

3 LEONARD OFFICIALS GO TO WEST COAST

DETROIT, May 4.—A "flying squadron" of Leonard Refrigerator Co. officials leaves Detroit tomorrow for the West Coast where they will spend three weeks in covering a series of sales meetings.

R. I. Petrie, sales manager; A. M. Taylor, director of advertising, and C. M. Armstrong, vice president of the Refrigeration Discount Corp., compose the group. Arriving in Los Angeles, they will be joined by J. B. Nicolson, western district sales manager, and A. E. Gibson, Los Angeles branch manager of the Refrigeration Discount Corp.

A meeting Monday, May 9, of Graham Hambly & Sons, Los Angeles, will be the first attended by the group of officials. From Los Angeles, the itinerary takes them to San Diego, Calif., where they will speak May 11 to personnel of Electric Supplies Distributing, Co., Inc.

Then to San Francisco, to a dealer meeting planned by Chanslor & Lyon Stores, Inc., May 13, the first of a series of three dealer meetings to be held by this distributor. The other two meetings will be held by the firm in Fresno, Calif., May 16, and Sacramento, Calif., May 17.

The group will travel to Portland, Ore., to a meeting sponsored by Cronin Distributing, Inc., May 19, and will end the trip at Seattle, Wash., May 20.

ALLEN ELECTED OFFICER OF MANAGEMENT GROUP

EAST PITTSBURGH, Pa.—C. E. Allen, commercial vice president of Westinghouse Elec. & Mfg. Co., has recently been elected a vice president of the American Management Association for the term 1932-33. He will be in charge of the Consumer Marketing Division of the A. M. A.

G. E. ORGANIZES DEPARTMENT OF AIR CONDITIONING

Joe Donovan, Formerly Apartment Manager, Appointed Head

NEW YORK CITY—The organization of an air conditioning department within the General Electric Co., which will market various electrical devices for home heating, humidifying and temperature control, has been announced by President Gerard Swope.

One of the first products to be marketed by the new department will be a complete oil-burning furnace.

J. J. Donovan, Cleveland, formerly in charge of apartment house refrigeration sales, will manage the new department. Associated with him will be E. D. Harrington, Schenectady, N. Y., in charge of application engineering; J. R. Rue of Pittsfield, Mass., in charge of manufacturing, and H. S. Woodruff, Schenectady, N. Y., in charge of design engineering.

Headquarters will be maintained at General Electric's New York City offices, 120 Broadway.

Weather Man

J. J. DONOVAN

Extra Distribution

With the cooperation of the General Electric Co., copies of this issue of ELECTRIC REFRIGERATION NEWS are being mailed to all General Electric refrigerator dealers.

This is one of a series of special mailings planned to bring ELECTRIC REFRIGERATION NEWS to the attention of every dealer in the electric refrigeration industry.

Previous issues since the first of the year have been mailed to: Copeland dealers, Jan. 20; Frigidaire dealers, March 23; Majestic dealers, April 6; Mayflower dealers, April 20. The next issue will go to all Norge dealers. Arrangements have been made with other manufacturers to make further special mailings through May and June—Editor.

1,268 DEALERS SELL G. E. HOTPOINT RANGES

CHICAGO—A total of 1,268 dealers has been appointed to handle the General Electric Hotpoint range thus far, according to W. H. Bondurant, head of the dealer appointment division of the Edison-General Electric Hotpoint Range, Inc.

Merchandisers who can qualify as "key" dealers are the type being selected at the present time, according to Bondurant.

"The distributors of this company are not out to establish a dealer-appointment record in 1932," Bondurant states. "We are attempting to select dealers who will carry out their functions satisfactorily and who will cooperate in newspaper and billboard advertising and in the educational work involved which will be carried on mainly through home service work."

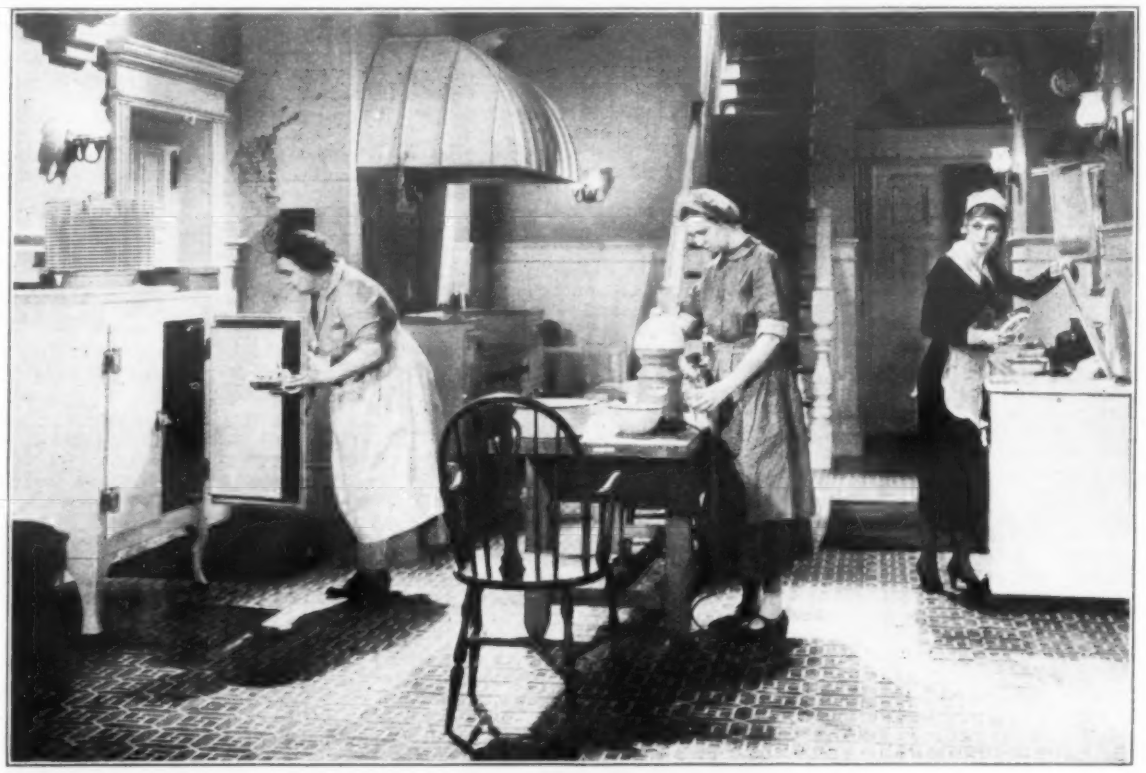
On the basis of present estimations it appears that approximately 20 per cent of the range volume in 1932 will come from dealers.

FLACK JOINS SALES STAFF OF DOMESTIC INDUSTRIES

PHILADELPHIA—Toney E. Flack, formerly connected with the Starr Piano Co., has accepted a position as assistant sales manager of the Buckeye refrigeration department, Domestic Industries, Inc., of Mansfield, Ohio, and has established headquarters here.

Mr. Flack has charge of sales promotion in the eastern United States, and is holding sales meetings for Buckeye eastern salesmen to lay out the year's program in retail and wholesale fields.

Electricity Works for George Arliss



Above is a "still shot" from "Successful Calamity," which stars suave and polished George Arliss, showing a General Electric kitchen. The G. E. products here are the refrigerator, range, ventilator, dishwasher and clock. It is a Warner Bros. First National picture, and will soon be released. Our idea of a real stunt would be to photograph George Arliss INSIDE a refrigerator (a la Joan Blondell).

FIVE TRAINLOADS OF UNITS LEAVE NORGE FACTORY

Ceremony Marks Record Shipment at Muskegon

By George F. Taubeneck

MUSKEGON, Mich.—With a mighty blast of the whistle and a concurrent shower of sooty steam which speckled the hats on the first row of spectators, President Howard Blood of the Norge Corp. engineered the first of five trainloads of Norge refrigerators down the Pere Marquette tracks here last Friday afternoon, while several hundred Muskegon citizens and Norge employes cheered lustily.

Packed in the 140 cars of these five trains were some 8,000 Norge refrigerators, with a cash value in excess of $1,500,000. Norge officials declared that this was "the largest single shipment of electric refrigerators ever made."

It was also the biggest loading ever made at Muskegon by the Pere Marquette railroad, which sent several officials down for the ceremonies.

After the train piloted by Major Blood had safely passed the first block signal, each of the other five trains steamed away in turn, accompanied by prolonged cheering and waving of hats.

Before these trains got into motion, they were lined up five abreast in the Pere Marquette north yards, where representatives of practically every civic organization in Muskegon gathered to congratulate Major Blood and his associates, and to present them with tokens of the city's gratitude for having provided employment for so many men during the last few months.

Miss Maxine Noyes, declared to be one of the town's leading belles and

(Concluded on Page 13, Column 1)

FREEZE KING ANNOUNCES 5-CU. FT. UNIT FOR $99.50

CHICAGO—A 5-cu. ft. model, guaranteed for three years, to retail at $99.50, was announced Friday by the Freeze King Corp. as an addition to its line of electric refrigerators. Production has already started.

The new model is all steel, insulated with Dry-Zero, with a capacity of 5.3 cu. ft. The freezing compartment contains three standard trays holding 6 lbs. of ice.

The model has nine points of temperature control, a defrosting switch, and an overloading relay. The evaporator is of the flooded type with a reciprocating compressor and aluminum alloy piston.

DAVID K. E. BRUCE ELECTED WESTINGHOUSE DIRECTOR

EAST PITTSBURGH, Pa.—David K. E. Bruce, New York lawyer, was elected a director of the Westinghouse Elec. & Mfg. Co. at a meeting of the stockholders recently.

Other organizations in which Mr. Bruce holds directorships are: Aluminum Co. of America, Consolidated Gas Electric Light & Power Co. of Baltimore, Fox Film Corp., W. A. Harriman Securities Corp., Pan American Airways, Inc., Los Angeles-Salt Lake R. R. Co., Oregon Short Line Railroad Co.

Oregon, Washington R. R. & Navigation Co., Union Pacific Railroad Co., United Porto Rican Sugar Co., and Worthington Pump & Machinery Corp.

The four directors whose terms had expired were reelected at the meeting. They are: Joseph W. Marsh, A. W. Robertson, H. H. Westinghouse, and Albert H. Wiggin.

G. E. DISTRIBUTOR OPENS NEW SALES QUARTERS

AKRON, Ohio—The Willis Co., General Electric distributor in Akron, Canton, and Youngstown, Ohio, territory, has opened new offices, local salesrooms, and wholesale quarters at 25 S. Main St., Akron. A demonstrating kitchen and domestic science institute under the direction of Mrs. Arthur Willis have been added to the new set-up which occupies the entire three floors of the building.

ENVOY ARRIVES FOR REFRIGERATION SHOW

NEW YORK CITY—Juan Emilio Capurro, who has been sent to the United States by the Argentine government in connection with the Sixth International Congress on Refrigeration to be held in Buenos Aires from Aug. 27 to Sept. 10 of this year conjointly with the International Exhibition of Refrigeration, recently arrived in New York from the Argentine. Senor Capurro's headquarters during his stay in the United States will be at 149 Church St., New York City.

"American manufacturers have a splendid opportunity to develop their business in the Argentine by exhibiting their refrigerating apparatus at the International Exhibition," Senor Capurro said upon his arrival on the Munson liner "Western World."

Expand Refrigeration Requirements

"There will be a great expansion in the refrigeration requirements of the republic in the near future. The use of frozen chambers is expected to be extended throughout all the commercial centers of the country. Refrigerating machinery will be in demand in the outlying colonies and farms as well.

"Although there are approximately 400 abbatoirs in the interior of the country, slaughtering annually over 3,000,000 animals, only six or seven have refrigeration installations.

"The delegations which attend the International Congress at Buenos Aires," Senor Capurro continued, "will have the opportunity to visit a new country which offers very great economic possibilities, to study its sources of production and its industry and at the same time to be in contact with Argentine technical and industrial experts.

44 Countries Represented

Forty-four countries, dominions and colonies, signatories of the Paris convention in June, 1920, will be represented at the Congress. At the refrigeration exhibit the following awards by the National Executive Committee of the Permanent Commission of the exhibition, will be made: Grand Prix, Diploma of Honor, Gold Medal and Silver Medal, in addition to honorable mention for exhibits which merit it.

"The International Exhibition of Refrigeration will be held at the grounds of the Argentine Rural Society in Buenos Aires and will be opened on the third of September, concurrently with the opening of the International Exhibition of Livestock at Palermo."

Program for Congress

The program for the Congress follows:

Saturday, Aug. 27—Reception of delegates and distribution of insignia and programs, 9 a. m. Automobile excursion through the city, 2 p. m.

Sunday, Aug. 28—Inauguration of the Congress with official reception, 10 a. m. Reception of the official governmental delegates, members of the International Institute of Refrigeration. Designation of the presidents, vice presidents, secretaries and relators.

Monday, Aug. 29—Sessions of the Congress during morning and afternoon. Official banquet given by the Argentine Government in honor of the official delegates in the evening.

Tuesday, Aug. 30—Sessions of the Congress, morning and afternoon.

Wednesday, Aug. 31—Sessions of the Congress, morning and afternoon. Gala function in honor of the delegates at the Colon Theatre in the evening.

Thursday, Sept. 1—Ceremonies to fix the "Tellier Bronze" at 9 a. m., followed by a visit to the municipal slaughterhouse. Lunch at Argentine Crillo. Session of the Congress at 3 p. m.

Friday, Sept. 2—Sessions of the Congress, morning and afternoon. Fiesta of native art in the evening.

Saturday, Sept 3—Session of the Congress at 9 a. m. Inauguration of the International Exhibition of Livestock at Palermo and inauguration of the International Exhibition of Refrigeration at 2 p. m.

Sunday, Sept. 4—General closing session of the Congress and elections, at 10 a. m. Visit to the exhibition of livestock at Palermo in the afternoon.

Monday, Sept. 5—Visit to the International Exhibition of Refrigeration in the morning. Traditional luncheon, "Banquet of the Champions" at the Rural Society at noon.

Tuesday, Sept. 6—Excursion to the docks and visit to the packing house. Lunch at the Anglo Packing House. Official banquet to the delegates by the Executive National Committee.

Wednesday, Sept. 7—Visit to the Swift and Armour packing house. Lunch at the Armour. Visit to the City of La Plata in the afternoon.

Thursday, Sept. 8—Excursion by special train to visit the City of Rosario.

Friday, Sept. 9—Visit to stock house in the morning. Official reception at the Government House by His Excellency, the President of Argentina, General Agustin P. Justo.

Saturday, Sept. 10—Visit to an estancia.

How To Operate a Distributorship

As Told By H. G. Bogart, Jr., G. E. Distributor in Toledo, O.

By Phil B. Redeker

TOLEDO—It is not only the discovery of new ideas, new ways to sell that makes for successful merchandising; the *dramatization* and *proper presentation* of some old *fundamentals* may be a greater factor than the inspiration of the moment, says H. G. Bogart, Jr., sales head of the H. G. Bogart Co., distributor for Toledo and surrounding territory.

Although Mr. Bogart modestly asserts that his organization is doing "nothing really new" in the way of merchandising plans, his treatment of some of the old and tried principles of merchandising is at least different—and effective.

Method of Hiring Salesmen

He has never lost sight of the fact that the people that he is dealing with —both *salesmen* and *prospective buyers* —are *human beings,* with reactions very much like his own.

A good example of this characteristic may be had by an examination of his method of hiring and handling salesmen.

"A man can learn a good many things by listening to his wife," he states, and he has learned many things about the door-to-door salesman by listening to his wife's spontaneous opinions about specialty salesmen drawn from her actual experiences.

Secretary Gives Impressions

That he places a good deal of reliance on the value of such opinions as his wife may have about the ways and appearance of salesmen is attested to by the fact that he has hired a secretary whose reactions might be similar to those of the average housewife.

This girl, who is apt at both registering and setting down quick impressions, sits unobtrusively in the office of the retail sales manager while he interviews a prospective salesman.

Judges Appearance, Manners

Without the salesman ever suspecting it, she jots down *her impressions* regarding his *appearance and manner* and slips them to the manager sometime during the interview. These impressions are oftentimes the deciding factor in the hiring of a particular individual.

"I should say that appearance is the paramount thing to look for in the prospective salesman," says Bogart. "If he cannot present a good appearance, the chances are that he will never get by the front door to present his story.

Cleanliness of Body, Dress

"By 'appearance' I do not mean that he must be a 'flossy' dresser, but merely that he give careful attention to matters of *cleanliness* of both body and dress," Bogart states.

Among other factors to be looked for in salesmen, ability to "close" is probably the most important, Bogart says.

"There doesn't seem to be any formula by which a sales manager can foretell this characteristic in a man," the G. E. distributor states. "If somebody could figure out a way to discover the characteristic in a man that makes him a forceful, successful closer he would be worth a lot to the industry."

Wholesale Man Closes Sales

A salesman who is awkward or offensive in the manner in which he goes about the task of closing a sale not only undoes his previous efforts, but nullifies all the work which his company has done in building acceptance for the product.

For this reason, Bogart says, he is planning to bring in one of his wholesale representatives, who has a reputation as a "closer," to work with his salesmen on jobs which they are about to close.

Bogart does not expect that his men will all become first-class closers through such a method, but he does think that they may assimilate the graceful and diplomatic manner which this successful closer evidently has.

Closed Territories

Experience may be a hindrance as often as it may be a help in these times, Mr. Bogart opines. Present conditions call for a new type of salesmanship, and the experienced man may not be able to forget former prejudices or obsolete methods.

Senior salesmen are given closed territories to work in, because it helps their morale and gives them confidence in the man they are working for, Bogart points out.

"The distributor who has the *welfare of his salesmen* at heart is likely to get the best results from his men," Bogart says.

"Salesmen get part of the commission on every refrigerator, going into their territory, which may have been sold by an associate dealer or at the main retail store.

"Knowing this, they generally help the associate dealer in their territory who is working on a friendly prospect, rather than competing against the dealer or exhibiting jealousy because he gets the sale."

In the establishment of associate dealers in the city of Toledo proper, Mr. Bogart had in mind certain definite objectives which are perhaps a bit different from the generally accepted reasons behind the setting-up of dealers.

Dealer stores, like the main retail stores, are principally spot exposure stations—another way of keeping the product before the eyes of the public, Bogart states.

Dealer Acts as Salesman

Thus, the dealers which he has set up in Toledo are merchandisers with strategic locations who are glad to get the chance to sell another line. The *dealer acts only as a salesman,* taking a commission on every sale, while the distributor makes the installations and collections and takes care of service.

"Many dealers, especially those in the radio game, are glad of the opportunity of taking on another line which they can sell at a profit without incurring any obligations. They receive the refrigerators which they display on a consignment basis only.

Seek Good Locations

Dealers who have good locations and a reputation for ethical practice have been sought out by the G. E. distributor.

The "25 Plan," which is used by all G. E. distributors, wherein the salesman is given 25 names to canvass in the morning, reports on these that night, and is given afternoon follow-ups and evening appointments to keep him busy the rest of his 16-hour working day, is followed in detail by the Bogart organization.

"In fact, the '25 Plan' is *valuable only if it is followed very closely,* and with strict adherence to detail," states Bogart.

Junior Salesmen Added

In the present spring season, during which time Bogart wishes to accelerate the work of his canvassers to uncover every possible prospect, a group of junior salesmen has been added.

These young and neat appearing canvassers go from door to door in the virgin part of each of the 18 territories into which the city is divided, and with the use of a more or less canned approach attempt to uncover all who may be interested in refrigeration sometime during the season.

Training of salesmen takes place at the daily morning meetings, which are held under the supervision of the retail sales director. The director talks on current problems, and instructs the men in the proper use of new sales helps.

Discourage Problem Discussions

Open discussion of individual problems encountered by the men is *discouraged,* as Bogart believes that it destroys the discipline and constructiveness of the training session by converting it into a gabfest. Bogart attends these meetings at intervals to get a picture of their interest and spirit.

Salesmen are paid on a straight commission and in addition make an added 2 per cent extra monthly on their sales if they make or better quota. An additional bonus is given for the yearly making of quota.

Local Contests Held

Local monthly sales contests are held in the interim between contests put on by the central G. E. refrigeration department. Some definite award is set out for the victors in such contests; one such last year being a trip to the National Air Races.

"I believe that our greatest sales tool is our *kitchen institute,*" Bogart claims.

"Cooking demonstrations are held in this institute before a selected group of women who have been invited because they are or might be interested in the purchase of a refrigerator or electric range, and who have the capacity to buy.

"In obtaining a home economist who *'personalizes'* her work I believe that we get the women thinking in terms of her and her work, and this *identification* is later linked up with the product."

Follow Up Prospects

Names of women attending such demonstrations are placed on cards and put in the salesmen's file for follow-up.

Bogart believes that the range is almost the perfect piece of companion merchandise for the refrigerator. He also believes that the future field for the distributor of domestic refrigerators lies in the all-electric kitchen, a story to which the present housewife, who has returned to the kitchen, is particularly amenable.

"The range and the all-electric kitchen idea give the salesman something to look forward to in future years," Bogart points out.

In addition to its retail operations in Toledo, the Bogart organization is the G. E. wholesale distributor for an area embracing part of Ohio and northern Indiana.

He has four district representatives—two working out of Toledo, one out of Ft. Wayne, Ind., and the fourth from South Bend, Ind.—who work with the dealers in their various territories.

"These men are dealer contact men —*and something more,*" says Bogart. "I like to think of them as the best salesmen in the territory.

"They call on tough prospects in the capacity of a closer. They make calls with the dealer or his salesmen to see that the correct manner of salesmanship is being employed. They take dealers out to call on users to show the dealers the benefits to be derived from such calls.

Contact Reports

"What is perhaps most important is the 'Representatives Contact Report' which they fill out after each visit and which gives us specific knowledge of what the dealer's activities are," says Bogart.

Samples of the type of material gathered in this report may be gathered from the following classifications in the report blank:

Refrigerators on display. Refrigerators in stock. Does dealer maintain reference file covering bulletins, letters, etc.? Does dealer maintain a file of user cards for service requirements? G. E. estimated sales this month? Is dealer interested in commercial and if so is he securing prospects? Dealer's attitude towards our company.

Sales Promotion Divisions

Under the head of sales promotion activity come the following divisions: Number of full time salesmen on G. E. products. Does dealer have electric sign? Does dealer use window display? Number of prospects receiving *Silent Hostess.* Does dealer use slide film service? Is dealer following schedule on newspaper advertising? How many good prospects in file for refrigerators? Has dealer a user file? What activities such as exhibits, displays, cooking schools, etc., does the dealer engage in? Is dealer taking correspondence courses?

"When we sit down to talk with a dealer about his business we can go directly to the file containing these reports, and by laying them before him, show him the *reasons for his success or failure.*

Four Wholesale Representatives

"We can back up any theories we might want to propound by *facts* compiled on his *actual operations.*"

The four wholesale representatives are responsible for building up the various sales organizations in their own territories, and for training the outside sales force which the dealer is required to have.

Sales meetings and field training schools are held in towns which are so located as to make them accessible to dealers who will have to travel *no more than 40 miles* to "make" the meetings. This is important in getting a full attendance at such affairs, Bogart points out.

Demonstrations Effective

Cooking demonstrations are particularly effective *in small towns.* Costing the dealer nothing but a share of the newspaper advertising, as the distributor furnishes equipment and home service advisor, and a local grocer ties-in by donating the foods, these "cooking schools" are often great aids in building good will and getting actual prospects for the local dealer.

In addition to maintaining an outside sales force commensurate with his territory, the dealer must keep a floor display, exhibit a G. E. sign, and tie-in with advertising and sales promotion programs.

A central service department which operates in the field is maintained as a separate division in the wholesale work, the wholesale sales representatives devoting their entire time to sales work.

Use Newspapers, Billboards

Newspaper and billboard are the two most heavily-played advertising mediums used in the Toledo retail operations, Bogart points out.

The newspaper, in addition to being another form of a "spot exposure," as Bogart terms the matter of keeping a product's identity before the public, is also a medium for drawing the public's attention to such special merchandising projects as the kitchen institute.

Likes 'Buyer's Guide' Ads

He finds the page containing several similarly-sized merchants' ads, sometimes known as a "Buyer's Guide" page, especially effective for this purpose.

"In the matter of billboard advertising I am breaking all traditions by using *barns* this year," Bogart laughs.

"But there is a reason behind my move. The Toledo public 'lights' out of town on one of the many heavily-traveled highways when it has a week-end or a nice night in which to take a little recreation or find some amusement. Because of this constant flow of traffic out of the city and back again, I think billboard advertising is effective.

"I am going to use barns because my ad will not be in conflict with others, it will be placed at strategic points along the road, and under the agreement it will either be kept up properly or painted out."

Bogart's knowledge of the *ways of the buying public,* even in their recreation-seeking habits, in the particular community in which he operates has evolved this comparatively radical idea in billboard advertising.

Economy Selling Point

"I think that we take the matter of public acceptance of the virtues of refrigeration *too much for granted,*" Bogart says in discussing the matter of promotional work.

"We all know that the economy argument is the big selling point this year as it was last, but are we dramatizing it as we should?

"A stunt which we recently tried presents an idea of the possibilities that lie in proper dramatization of the *economy* argument.

Quantity Saving

"We went out and bought a quantity of food which would fill a 6 cu. ft. model from a merchant on a bargain day, and a week later obtained a statement from the merchant as to what this food would have cost if purchased bit by bit over a week's period.

"It was discovered that a saving of $2.17 was effected through the quantity purchase. We put the 6-ft. box and the '$2.17 saved by doing this' sign on it in the window of our retail store—and it drew what turned out to be the *largest crowd* attracted by any stunt we ever put on."

1,000 PRIZE CONTEST STARTED BY UTILITY

SAN FRANCISCO—A "1,000 Prize Contest" for skill in enumerating the advantages of owning a Frigidaire, General Electric, Kelvinator, Leonard, Majestic, Norge, Servel, or Westinghouse electric refrigerator will be carried on by the Pacific Gas & Electric Co. in cooperation with the Electric Refrigeration Bureau of northern California, May 1 to June 30. One thousand prizes will be awarded.

The contest is part of the A. F. Hockenbeamer 1932 Refrigeration Plan, budgeted at $30,000 for the year.

Everyone is eligible to compete in the contest, and can do so by visiting, before June 30, the store of any dealer selling one of the several refrigerators listed and filling out a questionnaire on electric refrigerators.

A master sheet, prepared by a committee, shows the advantages of the various makes and will be used to check against the answers of contestants.

In awarding marks, 72 per cent will be given for listing the 12 principal advantages to be found in the refrigerator examined, 18 per cent for giving these 12 advantages in their proper order, and 10 per cent for the enumeration of any additional advantages (not to exceed 10).

Dealers will mail all contest cards to their distributors weekly, and the judging committees will meet July 5 to examine all entries. Prize winners will be notified by July 18.

NEBRASKA POWER SELLS 20% OF QUOTA FOR YEAR

OMAHA—More than 20 per cent of its year's quota of refrigerators was sold by the Nebraska Power Co. during January, February, and March, according to announcement by James E. Davidson, president of the company.

The total sold during the three months was 605 domestic units; the full year's quota is 2,838. The 605 exceeds the quota for the first three months of the year by 42 per cent.

A tabulation of the sales shows that 91 were made in January, as compared with a January quota of 57; 168 were sold in February, as compared with a quota of 114, and 346 were sold in March, as compared with a quota of 255.

HAZLETT APPOINTED MANAGER OF ELECTROLUX DEPARTMENT

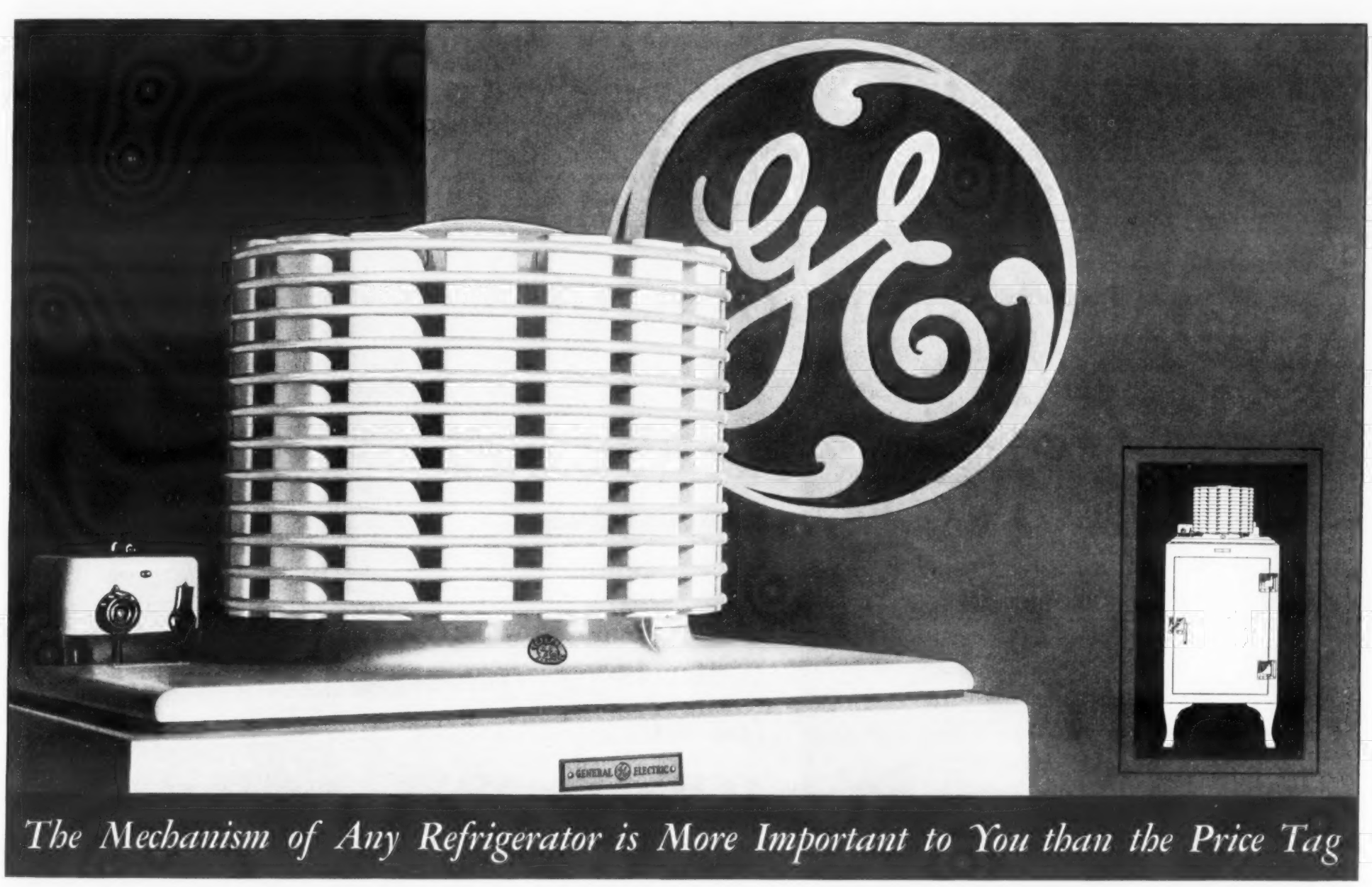
MINNEAPOLIS—Ray C. Hazlett has been appointed manager of the Electrolux department of the Minneapolis Gas and Light Co., according to announcement by E. J. Boyer, sales manager. Mr. Hazlett will also continue as manager of the range department, which position he has held for three years.

He has been connected with the utility company since 1915; for 10 years he was in the general offices, and was later promoted to the sales department.

Mr. Hazlett's first step in taking over the refrigeration department was to send out business reply cards on Electrolux which were enclosed with the monthly gas bills.

4 *General Electric offers a* YEAR SERVICE PLAN

ON THE MONITOR TOP MECHANISM . .



The Mechanism of Any Refrigerator is More Important to You than the Price Tag

LET'S GET DOWN TO THE FACTS on modern refrigeration.

It is misleading to dealers and to customers to focus all attention on incidental features . . . or on the price tag only. *The mechanism* is your customer's most important consideration in the selection of a refrigerator. When it fails, service and repair bills commence. Continuous service charges on a "cheap" refrigerator can eat up the dealer's profits and the customer's savings.

General Electric's 4-Year Service Plan protects every new buyer against any failure of the famous Monitor Top mechanism for *four full years!*

General Electric spent fifteen years perfecting a mechanism that would give uninterrupted, economical service year after year.

Today, the G-E Monitor Top is the only refrigerator mechanism *entirely* sealed-in-steel. Belts that can stretch and break, fans that can get out of order, shaft seals or stuffing boxes that can leak, are all eliminated. Only the General Electric employs the simple principle of natural air cooling.

The G-E mechanism requires no attention . . not even oiling. It is the cleanest, most simple and efficient refrigerating unit ever developed. Its four year record in more than a million and a quarter homes is unparalleled in refrigeration history.

Don't let "lowest price" confuse you. Probably the most expensive refrigerator to you and to your customer would carry the lowest price tag.

It is not necessary to maintain large and expensive departments to service General Electric Refrigerators. The General Electric Company assumes complete responsibility for the uninterrupted performance of the sealed-in-steel Monitor Top mechanism. General Electric dealers can *keep* their sales profits. General Electric Company, Electric Refrigeration Department, Section DF 51, Hanna Building, Cleveland, Ohio.

Millions have joined the ever-widening G-E Circle, presided over by Grace Ellis, N. B. C. Coast to Coast network, daily at noon (except Saturday); Sunday, 5:30 p. m. (E. D. S. T.)

GENERAL ELECTRIC

ALL-STEEL REFRIGERATOR

DOMESTIC, APARTMENT HOUSE AND COMMERCIAL REFRIGERATORS — ELECTRIC WATER COOLERS

METROPOLITAN FRONT LEADS G. E. ATTACK

(*Concluded from Page 1, Column 1*)

a sudden break in the climate resulted in the Driscoll army throwing the enemy back more than 92 miles.

Aided materially by the declaration of war made by General Preston Arkwright, commander of the air forces of the Georgia Power Co. in the Atlanta sector of the Atlantic front, troops of the Alexander field army made a concerted drive and moved the enemy troops back more than 70 miles.

Lieutenant Generals Hines and McCrea on the same front as Alexander also made heavy advances without the loss of a single man.

Sales Resistance soldiers were unable to withstand the heavy barrage and machine gun fire of the attackers and retreated 69 miles before Lieutenant General Hines' army, and 65 miles before McCrea's onslaughts.

The insignia of general conferred each week on the leader of the central front was transferred today from the now Lieutenant General Fred Cushman to General A. F. Head in Indianapolis, leader of the Hoosier field army.

Lieutenant General L. T. Milnor missed the promotion by a scant margin, but forged somewhat ahead of the Cushman troops. Lieutenant Generals Turner Barger, H. G. Bogart, Jr., and others, except Stewart, all made nice advances along the central front.

No report was received from Lieutenant General Stewart.

General H. A. Pendergraph, leader of troops in the Nashville, Tenn., sector of the southwestern front, and who has retained his rank now for several weeks, increased his margin over other officers on his front and now has penetrated the enemy's territory 40 miles beyond the nearest army—that led by Lieutenant General Gordon Smith, former generalissimo.

Another general who has had little opposition from others is General Syd Caswell, commander of the Michigan area and who has held onto his insignia for more than a month. General Caswell's troops have shown unusual ferocity in their attacks on the enemy and so far have marched through the opposing lines to the extent of some 260 miles.

General Caswell, however, did not make the longest advance last week along the midwestern front. Lieutenant General R. Cooper's field army exceeded Caswell's march by about seven miles. General Cooper, incidentally, according to reports received at general headquarters, sold more General Electric refrigerators last week than any other distributor. Rex Cole's sales were second in volume, Ovalle third, Harrison fourth, and Ochiltree fifth.

Titles of generals also were retained by A. J. Finck, leader of the Storz field army on the Rocky Mountain front, and by H. H. Courtright, commander of the Valley Electric forces.

The effect of the recently announced 4-year service plan, the full-page newspaper advertisements informing the public of the plan, and the improvement of weather conditions in various sectors are already noticeable, according to M. F. Mahony, manager of the merchandising department.

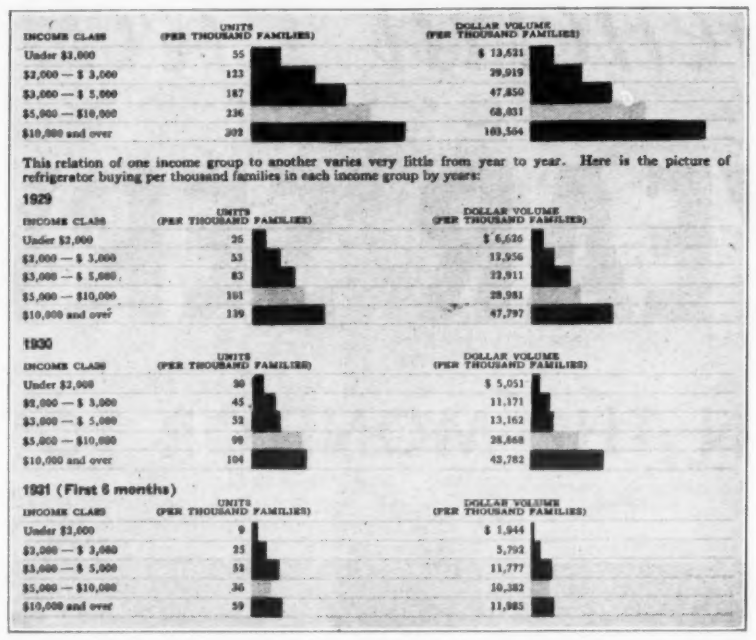
Meanwhile in Refrigerania headquarters at Cleveland, the line of colored pins indicating the advance into enemy territory on all fronts, slowly moves northward.

The colored map of the war front, covering the entire side of a room at headquarters, shows the terrain in great detail. The army has already advanced past such points as the village of Indecision and that of Spoilagetown, through Buylater Forest, and Gloom Gulch. The goal is an advance of 1,000 miles into the territory of Sales Resistance.

The map is duplicated in smaller sizes and hangs in headquarters of the various chiefs of staff.

IDEAS AND IMPRESSIONS · COMMENT · VIEWS AND EXPERIENCES

By F. M. COCKRELL



This relation of one income group to another varies very little from year to year. Here is the picture of refrigerator buying per thousand families in each income group by years:

1929

INCOME CLASS	UNITS (PER THOUSAND FAMILIES)	DOLLAR VOLUME (PER THOUSAND FAMILIES)
Under $2,000	25	$ 6,626
$2,000 — $ 3,000	53	12,956
$3,000 — $ 5,000	83	22,911
$5,000 — $10,000	101	28,981
$10,000 and over	139	47,797

1930

INCOME CLASS	UNITS (PER THOUSAND FAMILIES)	DOLLAR VOLUME (PER THOUSAND FAMILIES)
Under $2,000	20	$ 5,051
$2,000 — $ 3,000	45	11,171
$3,000 — $ 5,000	52	13,162
$5,000 — $10,000	99	28,868
$10,000 and over	104	43,782

1931 (First 6 months)

INCOME CLASS	UNITS (PER THOUSAND FAMILIES)	DOLLAR VOLUME (PER THOUSAND FAMILIES)
Under $2,000	9	$ 1,944
$2,000 — $ 3,000	25	5,792
$3,000 — $ 5,000	33	11,777
$5,000 — $10,000	36	10,382
$10,000 and over	59	11,985

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Markets by Incomes

We are indebted to Time, Inc., New York City, publisher of the magazines *Time* and *Fortune*, for a copy of a nicely bound book of 78 pages entitled "Markets by Incomes—volume I—a study of the relation of income to retail purchases in Appleton, Wis."

"How do people in the different income brackets spend their money? How do people with incomes of $2,000 or $3,000 or $5,000 or $6,000 vary as prospects for coffee, soap, refrigerators, automobiles?" Asks the introductory paragraph. The questions continue as follows:

"How many people in each income group are replacing old radio sets? What income bracket spends the most money for low-priced cars? How many people at various income levels have built the houses they live in? What did they pay? What kind of heating equipment did they install? How many washing machines? What electrical appliances?

"How many people in each income group can buy automobiles **and** radios **and** refrigerators **and** a new roof **and** a trip to Europe in any one year? What is the difference between the coffee consumption of a ten-thousand-dollar-a-year-family and a twenty-five-hundred-dollar-a-year family?

"How much does price competition affect the buying of different income groups? How much shaving cream will you find in different types of homes? How many tubes of what kind of tooth paste? What is the relation of income to the consumption of ginger ale? of cosmetics? of gasoline? of shoes?

"Who gets the difference between the workman's food bill and the banker's or lawyer's food bill? If you cut the income of 1,000 heads of families from one income level to the next lower income level, what will be the direct effect on manufacturers of advertised goods? And if you raise the income of 1,000 people, what effect will that have?

"These and a thousand and one other detailed questions, arising from almost every industry, have long remained unanswered. Seeking the answers, TIME has completed an intensive and exact survey of buying performance . . ."

• • •

1,000 Families

A lot of interesting questions they are—particularly those pertaining to refrigerators. Because "automatic refrigerators" were selected as one of the items for detailed study, we gave this book more than ordinary attention.

Our interest was further heightened by the fact that numerous inquiries have come into the office of ELECTRIC REFRIGERATION NEWS recently (apparently since *Time* issued this book) wanting statistics on the purchase of electric refrigerators *according to income classes.* Some of these inquiries came from other magazine publishers indicating their desire for information to offset the arguments of *Time's* advertising salesmen.

According to the figures and the colored charts in the book, it appears that 1,000 families having annual incomes of $10,000 or more, will buy more automatic refrigerators, and higher priced automatic refrigerators, than will 1,000 families having an annual income of $2,000 or less.

Our first reaction to that startling news is that it should not be necessary to spend a lot of money making a survey to determine that bit of information. It seems quite reasonable to expect that *one thousand families* having a high income will spend more money than *one thousand families* having a low income.

A very important fact which the survey seems to ignore is that in any city there are *not as many families* with high incomes as there are with small incomes.

The most important information revealed by the survey is that automatic refrigerators *are sold* to families having incomes under $2,000 as well as to families having incomes of $2,000, $3,000, $5,000, $10,000 and over. *But any refrigerator salesman can tell you that.*

• • •

Appleton, Wis.

The *Time* survey was made in Appleton, Wis., a city having a population of approximately 25,000 or about 6,000 families. This city was selected because of its average characteristics and particularly because the Wisconsin income laws permitted an inspection of the actual state income tax reports of the individual citizens.

With the help of the Appleton bankers, Chamber of Commerce, local newspapers, storekeepers and citizens, a elaborate study was made of the purchases of various products over a period including 1929, 1930, and 6 months of 1931. Thus, *Time* surveyed in detail the buying of—

431 out of 4,444	families with incomes under $2,000
196 out of 978	families with incomes between $2,000 and $3,000
231 out of 438	families with incomes $3,000 to $5,000
154 out of 220	families with incomes $5,000 to $10,000
87 out of 119	families with incomes $10,000 and over.

For statistical purposes the average purchases per family in each income group were translated into values *per 1,000 families.* A footnote explains that "it is clearer and more logical to speak of 55 refrigerators per 1,000 families rather than .055 refrigerators per family."

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Statistical Device

It seems to us that it would be more logical to show the number of refrigerators per 4,444 families with incomes under $2,000, and the number of refrigerators per 119 families with incomes of $10,000 or over, etc.

It seems to us that the data is misleading because of this statistical device. Because, looking at the figures and the colored charts, it appears that the Appleton families of high income have purchased the largest number of refrigerators (302, according to the tabulations) and that the $2,000 to $3,000 income class purchased a smaller number (123 refrigerators).

According to the report there were nearly 1,000 families having incomes between $2,000 and $3,000 indicating that pretty close to 123 refrigerators were actually sold to this income class group.

We find, however, that there were only 119 families in Appleton having incomes of $10,000 or over, or less than one-ninth as many as in the lowest income class, and that this group actually bought only about 33 refrigerators (one-ninth of 302).

In other words the electric refrigerator dealers of Appleton sold nearly 4 times as many refrigerators to the Appleton citizens getting from $2,000 to $3,000 as they did to the small group getting $10,000 and over.

Looking at the chart it would appear that the aim of the book is to emphasize the potential market for refrigerators in the *high income classes* where, it is presumed, most of the readers of *Time* are to be found.

We would interpret the data just the opposite way, namely that the big market is among the *low income group.*

Will *Time* please correct this if our conclusions are incorrect?

OUTDOOR ADVERTISING BY BUREAUS URGED

NEW YORK CITY—Approximately 1,000 local outdoor advertising agencies were circularized recently by Outdoor Advertising, Inc., to acquaint them with plans of the Electric Refrigeration Bureau, and to stress the importance of outdoor advertising in selling electric refrigerators.

The most prominent man in the Industry!

FROM an advertising standpoint, he is only *one year old.* But from the standpoint of being well known and widely respected, he is the most popular individual in the industry to-day. He is the **K. R. E.**— the **K**elvinator **R**efrigeration **E**ngineer — the man whom thousands of grocers, butchers, florists and other users of electric refrigeration have called in for *expert advice* on their refrigeration problems.

In more than 4,000 cities and towns throughout the country, the **K. R. E.** is building up sales, good will and *profits* on Kelvinator commercial equipment — the finest and most complete line of equipment in the industry.

In one year's time, the **K. R. E.** has become established as the electric refrigeration expert who can and does render a valuable service. Every day, more and more users are coming to him for advice. And each year will see him more firmly entrenched, more in demand, and more successful.

How would you like to be the **K. R. E.** in your town—and have behind you the finest lines of domestic and commercial; the oldest and largest exclusive manufacturer of electric refrigeration equipment, and a factory policy that *helps you make money* out of the franchise?

Send the coupon below for complete information. . . . KELVINATOR CORPORATION, *14245 Plymouth Road, Detroit, Michigan. Kelvinator of Canada, Limited, London, Ontario. Kelvinator Limited, London, England.*

Kelvinator

(539)

C O U P O N

KELVINATOR CORPORATION, *14245 Plymouth Road, Detroit, Michigan.*

Gentlemen :—

Please send me complete information about the 1932 Line and the Kelvinator Full-Profit Franchise.

Name _____

Street Address _____

City _____ *State* _____

LITTLE STORIES OF INTERESTING PEOPLE IN THE REFRIGERATION INDUSTRY

THE EXPANSION VALVE

LITTLE STORIES OF INTERESTING IDEAS IN THE REFRIGERATION INDUSTRY

By George F. Taubeneck

Conditioned Air

Recently we took the air conditioned "Columbian"—No. 28 on Daniel Willard's B. & O. railroad—from Washington, D. C., to New York City.

It was indeed a pleasant journey. Seven air conditioned cars, including an observation car and a luxurious lounge car, were kept at a temperature of 76° throughout the trip.

The Valve was a trifle too warm most of the trip, but the trainman maintained that lower temperatures—at that low humidity point—would be uncomfortable.

Undeniably sweet was the air. No smoke, no dirt, no cinders. Great!

According to the trainman, it cost the B. & O. about $4,750 per car to install the air conditioning equipment, but increased business last summer paid for the equipment many times over.

Practically every seat was taken on this train every day during the summer, the trainman declared. People often waited several hours (the Columbian leaves Washington at 4 p. m.) just to make the trip on that train.

The York equipment is located on one side of the platform of each car, so that you can enter the car from one side only.

It is driven by a generator powered from the axle of the car. Should the speed of the train become less than 12 miles per hour, a battery with a life of nine hours powers the motor.

The washed, dehumidified, cooled air is blown into each car through vents just underneath the ceiling.

Air conditioned passenger train service between New York City and Chicago (also between Washington, D. C., and St. Louis) was inaugurated late in April.

* * *

C. L. McCrea

C. L. McCrea, manager of the refrigeration department of the National Electrical Supply Co. in Washington, is a busy man.

We cooled our heels in his outer office longer than we've ever waited to see any man in the industry—and that includes the chief executives of practically every manufacturer, their first and second lieutenants, and a flock of distributors.

It wasn't because C. L. McCrea didn't want to see us, for he did. We've been acquainted for some time. But people were going in and out of his office as fast as unemployes entering and leaving a soup kitchen.

When my turn finally came, I could scarcely push a word in edgewise between the telephone calls he received.

Unlike most General Electric distributorships, the Washington refrigeration operation is part of a jobbing organization which merchandises all G. E. products (except heavy engineering installations) in that territory.

Ten retail stores operated by this concern sell G. E. refrigerators, and some 60 salesmen are telling the story of the Monitor Top.

Competition in Washington among refrigeration merchandisers is keener than Lou Maxon declares the new Gillette blades to be.

And that's precisely the situation for which Mr. McCrea seems best fitted. He's a fighter, and a bulldog who never knows when or how to quit.

His eyes snap; his mind snaps; and if you think it's a snap to beat him out of a big sale, you're as foolish as the Chicago wrestler who thought it would be a cinch to get the decision from a home-town pride down in Evansville.

In the big outer office of the refrigeration department (fourth floor of the National Electrical Supply Co.) where I waited, there were a number of empty desks.

These desks were accounted for, however, by a large sign on one wall, which read:

"The hours that COUNT are those spent in the presence of PROSPECTS."

And that, gentlemen, is what is called "getting down to fundamentals."

* * *

No Hula Hula

Readers of this kolyum are warmly urged to procure a copy of the May 1 REFRIGERATED FOOD NEWS (a product of the Business News Publishing Co.), turn to page 10 of that paper, and read Johnny Morse's story on refrigeration and foods in Hawaii.

Johnny, a personal friend of the Valve, left an editorial position on *The American Boy* last summer to make a voyage to China and Japan. Early in the autumn he went to the Hawaiian Islands, and has been there ever since. He is gathering material there for a series of stories.

In December we suggested that he get us a story on the refrigeration situation over there, and this week we are glad to present the result.

It probably is the first Hawaiian story on record that does not mention the hula hula.

He has been tramping around Hawaii, living with the natives, and getting as close to the soil as possible. During the first two months of this year his total expenditures were less than $5.00!

Recently he bumped into a 23-year-old hermit from Dallas, Tex. This young seeker of solitude has two shacks on the beach, catches his own fish, pounds his own *poi*. Tired of playing hermit, he has joined forces with Johnny.

From this source we may hear more later.

* * *

Scooping the Country

Incidentally, the May 1 issue of REFRIGERATED FOOD NEWS carries correspondence from Walter F. Coxe, secretary of the Louisiana-Mississippi Ice Association, Theodore F. Grunewald, director of New Orleans public markets, and W. E. Wands of Edw. N. Eberling & Co., Inc., Copeland distributor in New Orleans.

Mr. Coxe claims that the ice vs. mechanical refrigeration tests conducted by the city of New Orleans—and reported in full in the March 1 issue of REFRIGERATED FOOD NEWS—were unfair. Messrs. Grunewald and Wands beg to dissent from Mr. Coxe's opinion.

What pleased us most about this correspondence was Mr. Coxe's complaint:

"It is significant that although the ice industry of New Orleans on several occasions requested Mr. Grunewald, director of public markets, to furnish us with a copy of the Billingsley Engineering Co. report, it was given REFRIGERATED FOOD NEWS for publication before anyone in the ice industry was permitted to see it."

We can augment Mr. Coxe's statement. Refrigerated Food News printed the report and the story of the tests before anyone in the mechanical refrigeration had seen it.

Neither Copeland nor Kelvinator, which were awarded the contracts for refrigeration equipment after Copeland had won the test against ice, had been able to obtain copies of the report.

When the Valve told President Ruthenburg of Copeland that he intended to go down and get the facts, Mr. Ruthenburg was quite pleased. He wanted to know exactly what happened, too.

In New Orleans, your correspondent located the only copy of this report (it had just been finished) in the office of Sam Stone, architect for the New Orleans public markets, had that copy photostated, and rushed back with the photostatic copy to get it in the March 1 Refrigerated Food News, thereby scooping the country.

Within a very few days after the appearance of the March 1 REFRIGERATED FOOD NEWS, the issue was entirely sold out, with a number of orders still unfilled. And even today orders are rolling in for this issue with its report of the New Orleans tests.

All of which helps prove the point that if you aren't a subscriber to REFRIGERATED FOOD NEWS you're liable to miss not only important information on the refrigeration of foods, but the very latest reports on commercial refrigeration as well.

The price is only a dollar a year, and the line forms on the right.

* * *

Joe Donovan Agrees

A fighting Irisher by the name of Joe Donovan, who heads the new air conditioning department of General Electric and used to lead the apartment house division of the refrigeration department, sends us an issue of *On the Quiet*, which is an inter-organization bulletin issued by the May Oil Burner Corp. to its distributing organization.

Writes Joe: "The principles outlined seem to me to be very sound and easily applicable to the electric refrigeration industry."

After reading the message in this bulletin one begins to understand why it interested Joe so much. Apparently the May problem is somewhat similar to the G. E. problem: selling a high-priced product in a market glutted with low-priced competitive products, and maintaining a strong distributing organization intact in spite of the blandishments of manufacturers who are peddling franchises for cheap lines.

Because most readers of this kolyum are of the reflective type, we offer herewith portions of the May message:

"Before forming any conclusions as to where that oil burner business is going, let's study a few facts and form a sound basis for an opinion. The oil burner industry is just now going through the same process the automobile industry went through, and up to this point their experiences have paralleled.

"It may surprise you to learn that there have been 941 different makes of automobiles placed on the market since the automobile was invented. Of these 941 makes, just 47 survive today. Of the 47 survivors there are 14 makes whose sales are so small as to be negligible, such as the Lexington, Doble Steamer, Detroit Electric, etc., leaving about 33 makes out of 941 which are popularly sold.

"What became of the other 894 manufacturers? And what happened to the tens of thousands of dealers who sold their cars?

"The answer to the first question is that they were forced out of business for one of six reasons:

"*1. Too little capital.* Lack of sufficient capital to support and cooperate with dealer organizations is a common deficiency.

"*2. Too low selling price.* Trying to establish a competitive low price, disregarding the costs of production and national merchandising.

"*3. Too poor quality.* Cheapening the product to meet competition to such an extent that the buyer did not get his money's worth. Trying to make a cheap product rather than a good one.

"*4. Lack of thoroughness in production.* Substituting short cuts for painstaking mechanical practice to the detriment of the product.

"*5. Inadequate research and engineering ability.* Lack of competent talent to set the pace for the mechanical progress of the industry.

"*6. Inadequate sales and merchandising ability.* Lack of sales, sales promotion and advertising talent to establish a commanding position in the field.

"In the electrical refrigerator field the experience has been very similar, although it is much younger, and the number of casualties has not yet reached such a large figure. According to the October issue of "Advertising and Selling," in 1924 there were about 200 manufacturers of electrical refrigerators, and today there are less than 40, not more than 10 of whom can be said to be nationally known.

"The reasons for the demise of the 160 manufacturers are the same as those which accounted for the obituaries of the 894 automobile manufacturers.

"Now, how about the dealers who sold the products of these auto and refrigerator manufacturers? They invested their good money to establish their businesses, and to establish the name and prestige of the manufacturer's product, and then held the bag when the folding up process took place.

"They were deluded originally into believing that at last someone had come along who could carry them to success in defiance of the sound principles which have determined the destinies of businesses since trading began—and that's a long time.

"Any single one of the deficiencies listed will ultimately sound the death knell of any manufacturing business. It isn't necessary to combine two or more to finish the job. A single one is sufficient. And that's the point that often escapes notice."

* * *

"Developments in the oil burner business in the past two years have caused some dealers to wonder if they have made the right choice.

"This doesn't apply only to those who have chosen unwisely, but also to many who, if they hold to their honest convictions and do not allow themselves to become panicky, have made a wise choice. They lose sales to lower priced competitors more often than they think they should, and place the entire blame on the price of their product.

"As a matter of fact, the real reason is that today the people who do have money are spending it sparingly. Conservatism is the keynote of the times, and they will knowingly buy a second rate product at a lower price as a stop gap until business conditions improve.

"The idea of handling a cheaper oil burner, either in place of the Quiet MAY or in conjunction with it, has occurred to a few of our distributors. They have the mistaken idea that the cheap burner dealers are getting all the business they were getting in prosperous times, plus part of the business the Quiet MAY distributor had been getting.

"The truth of the matter is that you are catering to two different classes of prospects. Your usual prospects are buying conservatively; theirs are not buying at all. As a consequence, to live at all they are compelled to go into your field.

"That's what makes competition tougher right now, and you can depend upon it that it is just as tough for the other fellow as it is for you. A large part of his market has been taken away from him by conditions, and a smaller part of your market has been taken away from you—by conditions also.

"Don't let your resentment at the situation blind you to its causes. Remember that when a dealer takes on the fanciful advantages of a low priced mechanical product he has to take the grief that goes with it, which is real, and can wipe out the small initial profit in a very short time."

"A week or so ago one of our distributors visited us and in the course of his conversation he remarked that he is continually seeing how much grief his competitors are having, and knowing how very little he has, he is content to lose an occasional sale on account of price if he has to.

"This is the same distributor who last year, dissatisfied with the business he was doing and wondering who was getting it away from him, made a survey of his territory. He found that he had sold more burners than all his competitors combined!"

* * *

Poet's Corner

Noting that we have revived this kolyum's Poet's Corner, T. B. Allen, southeastern district representative for the General Electric refrigeration department, sends us this doggerel:

Ten dollars a month with the same amount down
Will buy you the finest cold storage in town.
But even this sum is by no means expense,
For you get back eight dollars and fifty odd cents.
And how do you do it I hear someone say,
I'll explain in a jiffy how easy the way.

You make up the list of the food that you know
Will last for a week and to market you go.
Every Saturday morning, and this you should try,
Instead of on week days when prices are high.
This one thing alone saves a dollar a week,
Or four for the month in the way that we speak.

The left-over problem, you say, isn't much,
But the meat and potatoes and salad and such
That you now throw away, for you can't keep them cold,
Will total a nickel a meal, so I'm told.
This, we readily see, will amount up quite fast;
Four bucks and a half from the first to the last.

You add these together and figure it out
That it's eight and a half that you're now paying out.
From the 10 dollar bill that we ask you to pay
Take eight and a half that you now throw away.
Taking savings from price will give you your cost,
For without this cold storage your money is lost.

And thus do we add to this great nation's wealth,
While we zealously guard our customer's health.
A million G-E's that are owned in the land
Are each showing the savings their owners demand.
Savings are vital in this modern day;
So why don't you save in the most modern way?

Grace Ellis Answers Her Mail

Grace Ellis (right), hostess on the G. E. Home Circle hour, dictates answers to inquiries received from the programs.

Rex Cole and Bobby Jones

While playing a tricky golf course at Augusta, Ga., Rex Cole discussed the hazards with Bobby Jones, retired world's golf champion and undisputedly the greatest golfer of all time. Rex, in case nobody has ever told you, is New York City distributor for G. E. refrigerators, and is generally credited with being Distributor No. 1 in the United States.

Model No. 1 Icemaker
All Porcelain

Model No. 2 Icemaker
All Porcelain

New and Profitable— The SEEGER Icemaker

Seeger now offers two New Cabinets on which Dealers can make a good profit

▼

THE Seeger Icemakers, when equipped with an Electrical Unit, will make from 60 to 80 pounds of ice at one filling, thereby answering and solving the problem of Ice and More Ice, From all over the United States, the demand for Cabinets of this type has been universal. They are a boon to many Homes, Hotels, Hospitals, Clubs, Restaurants, Stores and various other Institutions, and have found instant acceptance by the purchasing public. Sales can be made easily and quickly---one sale leads to another. Every Dealer will find it advantageous to carry the Seeger Icemakers on his Display Floor.

These Cabinets are equipped with Seeger Originated Continuous Hinge and Concealed Lock with black Bakelite Handle. and have 3-inch Insulation.

Illustrations include a composite low-side cooling unit. Arrangement has been illustrated for appearance only—this is regularly furnished by those supplying the electrical machine, and not by the Seeger Refrigerator Company

CABINETS BY

Seeger

SAINT PAUL

SEEGER REFRIGERATOR COMPANY

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LOS ANGELES, CAL.

666 North Wabash
CHICAGO, ILL.

644 Beacon Street
Kenmore Square
BOSTON, MASS.

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The First Quarter

RUMORS that the electric refrigeration sales for the first part of this year were much below those of a similar period in 1931 do not seem to be substantiated by the report of first quarter sales by members of the Nema group (refrigeration division of the National Electrical Manufacturers Association).

According to figures printed in the April 27 issue of ELECTRIC REFRIGERATION NEWS, Nema members, which last year sold over 80 per cent of the industry's entire output, reported sales to distributors and dealers of 146,851 household refrigerators for the first quarter of 1932, as compared with 144,740 for the first quarter of 1931.

It should be noted that the Grigsby-Grunow Co. has been a Nema member since the first of the year; and so the 1932 first quarter totals include Majestic sales, whereas those of 1931 do not. Undoubtedly, this means that the combined sales of the other 10 Nema members (Copeland, Frigidaire, General Electric, Kelvinator, Norge, Servel, Tennessee Furniture, Trupar, Universal Cooler, and Westinghouse) are somewhat under their 1931 first quarter total figure.

Field Stocks

Also it should be noted that these figures represent *sales to distributors and dealers*, and not to the general public. From the statistics on the number of electric refrigerators held in stock by manufacturers' warehouses, branches, distributors, and dealers at the end of the first quarter (printed on page 12 of this issue) one would judge that distributing organizations are undeniably well stocked, although probably not overloaded.

At the end of March, 1932, Nema group distributors and dealers had 90,907 units (household and commercial) in stock. Total value of the refrigeration products these distributors and dealers had in stock was $16,211,747.

Stocks of Nema distributors and dealers at the end of March, 1931, amounted to $14,000,000. (Again it should be noted that Majestic figures are included in the 1932 totals, but not in those of 1931.)

The approximate value of factory and warehouse stocks was $35,000,000 at the end of March, 1931, and again at the end of March, 1932.

Statistics on units in stock during 1931 are available only for the last three months of that year, hence it is not possible to make accurate comparisons on that score between the first quarters of 1931 and 1932. Because of present reduced prices, however, it is safe to assume that the number of units in stock at the end of March, 1932, is appreciably greater than the number in stock at the end of March, 1931.

One factor not shown in the figures above—a factor which is growing more and more important—is the numerous group of manufacturers which are not within the Nema fold.

At the present writing it would appear that refrigerators such as Gibson, Sparton, Bohn, Mohawk, Buckeye, King Kold, O'Keefe and Merritt, Holbrook, Coldspot, Zerozone, Dayton, Apex, Uniflow, Stewart-Warner, and those of other comparatively new manufacturers are going to represent a considerably larger portion of the industry's total sales than ever before.

This season has been marked by an almost unprecedented influx of new manufacturers into the electric refrigeration industry. Practically every one of these new manufacturers has two, three, or perhaps a dozen first-class distributing outlets all set to take on electric refrigeration and do an aggressive job of merchandising it. Hence, it would seem likely that these new manufacturers will add considerably to the industry totals. Reports from the field would indicate that already this is the case.

Dollar volume of household refrigeration products billed by Nema companies to dealers and distributors during January, February, and March of this year was $15,874,266.69, which compares rather unfavorably with the household dollar volume of $18,682,568 registered by the Nema group in 1931.

No doubt this drop in dollar volume can be directly attributed to the introduction of low-priced lines by so many manufacturers, and also to reductions in "de luxe" model prices. Manufacturers are assiduously cultivating the small-income market, which comprises the great portion of the 17,000,000 wired homes which do not now have electric refrigerators; and have produced lowest-price-yet models to tempt the men of small means who compose this market.

According to the manufacturers' own statements, however, these low prices have been obtained largely through savings in production costs and through advantageous purchases of parts and materials at the low levels of commodity prices now prevailing. Therefore one might reason that although the dollar volume of the manufacturers' total billings might be lower, their profits should not be proportionately decreased.

Sales of commercial units to dealers and distributors during the quarter of 1932 fell badly, being only 25,026, as compared with 38,849 for the first quarter of 1931 and 55,951 for the first quarter of 1930. An even sadder comparison can be made between the dollar volumes of commercial sales for the first quarter of 1932 and the first quarters of the two previous years, to-wit: 1932—$3,633,054.59; 1931—$6,065,280; 1930—$7,586,589.

Commercial refrigeration business is ailing largely because the food merchants to whom commercial refrigeration is sold are sick. The credit situation is said to be especially bad among food retailers. So high was the percentage of repossessions of commercial equipment last year that many dealers became discouraged, and have made only half-hearted attempts to sell commercial refrigeration equipment this year. Moreover, finance companies are checking and double-checking the credit prospects for commercial machines, and are grimly turning down a large portion of this business.

Repossessions Jump

Repossessions of household refrigerators have jumped decidedly this year, it is said. This fact probably can be accounted for by general business uncertainty, and by the nature of the market into which electric refrigerators are now being pushed. Also, possibly, by increase in the length of terms and decrease in the size of down payments.

In the face of today's business conditions, and especially in view of the fact that the income levels composing the market for electric refrigerators are becoming steadily lower and lower, the showing of the electric refrigeration industry thus far this year is indeed remarkable.

Indications are that household unit sales (including those of the new companies) are at least on a par with those of last year, and possibly higher. And although dollar volume has decreased, it seems possible that in view of lower prices for parts and materials—to say nothing of ingenious production economies which have been effected in almost every plant—profits may not be sliced so tragically as some calamity howlers would have it.

Undoubtedly the refrigeration industry has today one of the hardest working, keenest thinking aggregations of men to be found under any banner in the American industrial army. Their efforts have made electric refrigeration one shining spot in a general picture of gloom and darkness during the last two years, and apparently this situation is to continue in 1932.

When "good business" returns—if ever—the future of an industry which contains so much first-class man power, and which has made such an outstanding demonstration throughout the depression, should indeed be bright.

An Editor on Wheels

Stories of Interesting PLACES in the Refrigeration Industry

By GEORGE F. TAUBENECK

Washington, D. C.

(Concluded from April 27 Issue)

Arlington National Cemetery comprises, in its 408 acres overlooking the Potomac and the city of Washington, the final resting place of 25,000 soldiers who lost their lives in the Civil War, the Memorial Amphitheatre built by the G. A. R., the Tomb of the Unknown Soldier (World War), Tomb of the Unknown Dead (Civil War), the Curtis Lee mansion (home of Robert E. Lee), Sylvan Temple, and monument to those who died when the *Maine* sunk in Havana harbor.

Modeled after the Theatre of Dionysus at Athens and the Roman theatre at Orange, France, the Memorial Amphitheatre seats 5,000 persons at the annual Memorial Day services.

Across from the eastern staircase of the Amphitheatre's Colonnade is the Tomb of the Unknown Soldier, marked by a solid block of marble. A sentry patrols this spot 24 hours a day.

Every school child can recognize the image of Washington monument, that obelisk which rises 555 feet into the air from a base 55 feet square. It is the commanding object of the city.

Visitors will notice that the first third of this stone shaft is whiter than the remainder. That is explained by the fact that a period of 25 years intervened between the erection of this first portion and the capping of the shaft with weather-proof aluminum.

To begin this task, United States citizens subscribed $35,000 in dollar bills. It took a million-dollar Congressional appropriation to finish the job. Because of the lack of funds, architect Mills' plans for a temple at the base surmounted by a colossus of Washington in a Roman chariot could not—fortunately—be executed. The glory of the monument is its stark simplicity.

At the 504-foot mark are eight portholes affording grand views. You can take the elevator or walk up a corkscrew staircase, as you choose.

So lovely is the Lincoln Memorial that one instinctively gropes for feminine adjectives to describe it. Yet this 188-foot by 118-foot Greek temple has masculine strength and massivity.

It is said that Henry Bacon, designer of the Memorial, attempted to "express the single-mindedness of great achievement." And so he did, for the pure classicality of this architectural gem is both single-minded and an achievement.

Architects have distinct advantages over poets, sculptors, painters, and composers of music in the unending quest for ultimate beauty.

In the first place an architect can give his vision permanence. Paintings fade, poems may become less intelligible and less popular as the connotations of languages and the modes of men change, music may undergo the same fate, and a Venus de Milo may suffer broken arms.

But a temple or a skyscraper is as enduring as a pyramid. It stands outdoors, enhanced by dawns and embellished by moonlight. In its very size is grandeur.

Moreover, an architect can achieve almost pure beauty by adhering strictly to pure mathematics. Exact measurements are possible in his work; whereas the painter's touch is not infallible, the sculptor's hand may err, the composer must depend upon faltering mortals to bring his music to life, and the poet is subject not only to his own limitations, but to those of his readers' minds and to those of language itself.

If our thesis be correct, that architectural beauty can most easily, of all forms of artistic striving, approach the 100 per cent mark, then the Lincoln Memorial is the New World's nearest approximation to pure beauty.

Posing nobly on a hilltop, this Memorial is a simple rectangle of marble, surrounded by a dauntless row of marble sentries—36 faultless Doric columns.

Within the temple is a majestic Daniel Chester French statue of Lincoln seated. The brooding figure is lighted at night, and seems ghastly and cadaverous then.

Above the head of this statue is Lincoln's Gettysburg Address in bronze; opposite is another bronze tablet bearing the text of his Second Inaugural Address. Six Jules Guerin murals complete the interior decorations.

Almost indescribable is the glowing loveliness of this Memorial on a moonlight night.

It seems to have an irridescence of its own, adding materially to the magic lunar illumination of a slumbering world.

Immediately below Lincoln Memorial is the "reflecting pool," in which one can see—all at one time and all in line—the mirrored images of the Lincoln Memorial, Washington Monument, and the Capitol.

"Reflecting pool" is bordered by Japanese cheery trees. These gorgeously plumed trees also encircle Tidal Basin—which is a small lake near the Lincoln Memorial—and part of Potomac Drive.

First 3,000 of these trees were presented to the city of Washington by the city of Tokyo. Mrs. William Howard Taft, then the First Lady, planted the first tree.

They bloom in three colors—white and two shades of pink. The white-flowered variety is the Shirayuki ("Snowflakes"); the light pink is the Ariake ("Dawn"); and the deep pink type is the Fukurokuju ("Happiness").

Annually the bursting forth of these blossoms is the signal for the beginning of the "Washington festival."

From many parts of the nation men and women make pilgrimages to the nation's capital at that time primarily to see the "little bit of heaven" transplanted from the said-to-be earthly paradise of Nippon.

Result of a carefully conceived and thoughtfully defined plan is the symmetrical glory of Washington. Into the making of this plan went the brains of Washington and Jefferson, and Charles Pierre L'Enfant, French engineer.

Into the amplification and execution of the plan has gone the thinking of many architects, chief executives, and public officials.

At present a big program of reconstruction is under way. When the last stone is cemented, the new Triangle (crux of the reconstruction program) should vie with the Place de la Concorde in Paris. The Triangle will include three plazas properly garnished with fountains and monuments, and will cover some 70 acres.

Several new department buildings will add to the majesty of the completed project.

Random notes: A cab-driver told me that there are 5,000 taxicabs in Washington, or one for every 100 inhabitants. Rates are consequently low . . . Baseball, tennis, and football are played regularly around Washington monument and behind the Bureau of Printing and Engraving by Washington youths . . . An interesting detail of the Capitol building is the set of "cornstalk columns" in the lower vestibule at the entrance below the Supreme Court room. Representing bundles of cornstalks, with capitals formed like ears half-shucked, these columns were designed by La Trobe at the suggestion of Thomas Jefferson . . . Swankiest hotel in Washington today is the Shoreham. Next in line are the Mayflower and Wardman Park. The latter is of the octopus (long, slim, and many-armed) type found at resorts like French Lick, Atlantic City, and Coral Gables. Its spacious country-estate approach, its edge-of-the-woods location, and its excellent golf course and tennis courts make it an excellent place to loaf and play. No, I'm not subsidized . . . Plan your trip to Washington for spring or fall, preferably spring when the cherry trees are in bloom and when Congress is in session. Summers are devastatingly hot there.

Letters from Readers

Porcelain Enamel Institute, Inc.
612 N. Michigan Ave.
Chicago, Ill.
April 29, 1932.

Editor:

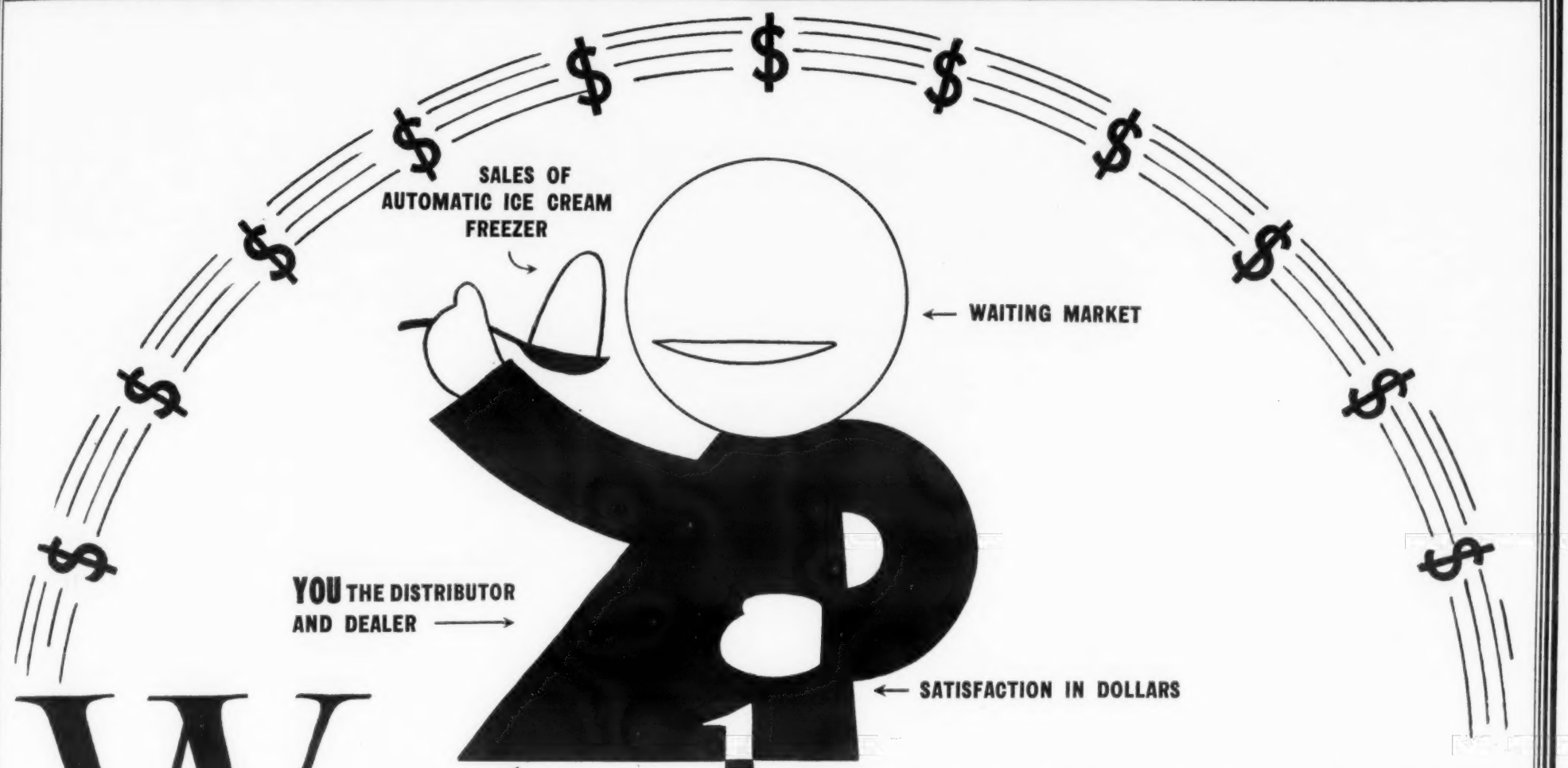
It would be interesting to know what prompted your lambasting of associations and your classifying them as "rackets" in your somewhat ironically labeled editorial (April 27, issue) "Co operation."

I do not consider it a part of my job to spend time complaining about trade paper editorials. But as one of a thousand or more association men who spend their waking hours and sometimes sleepless nights trying to perform service for their particular industry, I should like to call your attention to a few facts which I think you may have overlooked for one reason or another.

In the first place, present-day competition is just as much among industries as it is among companies in a particular industry. That statement is not taken from an association slogan book, if such a thing exists, and I do not believe it is necessary for me to quote authorities, since a glance at my intelligent sales analysis will bear it out.

Associations, among other things, serve as an agency for bringing com-

(*Concluded on Page 13, Column 3*)



Watch THAT WAITING MARKET GOBBLE THE CREAM!

BRILLIANT NEW SPECIALTY

Here's an invitation: *FOR* 30 Distributors, brilliant merchandisers; *FOR* 300 Dealers, the nation's best. Enter today the lively, fertile field of marketing the new Mills Automatic Ice Cream Freezer. This magnificent machine is universally acclaimed the most promising specialty introduced in the refrigeration business during the past two years. Drug Stores, Confectioneries, Ice Cream Stores, Hotels, Hospitals and Institutions of all kinds have welcomed it with open arms. It produces ice cream at approximately half the cost of buying it from the manufacturer; it sells ice cream at three times the profit. A huge, prosperous, growing company now invites you to partake of its generous profits. Here is the opportunity of your life!

IT BELONGS

Beautifully adapted to refrigeration salesmanship. Your present sales force will acclaim it as a fountainhead of volume and good business. Retail prospects of this new Freezer have money, have an urgent need for the merchandising assistance it offers. Prospective users are definitely known, wide open for your sales work. We supply unusual advertising cooperation, merchandising assistance and specialized sales training for your men. Kelvinator Pacific Company wires: *"Ship today via Judson Fast Freight Two Number Twenty-five Freezers and One Number Thirty-five Hardener with Complete Equipment."* Lebron Electrical Works wires: *"Ship Freezer and Hardener At Once. Requisition Follows."*

OPPORTUNITY CORNER

Send this Coupon for a Complete Revelation of Facts and Figures. Mail Now. No Obligation.

FIRM NAME_____

ADDRESS_____

CITY_____

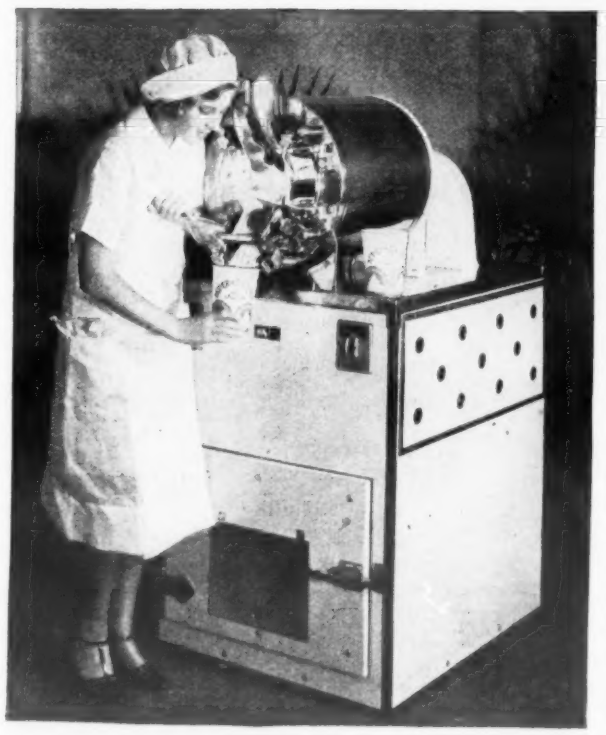
STATE_____

ERN-1

ANIMATED TURNOVER

Automatic Freezers are in! Mills Freezer is richly supported by two years of worthy success; made more appealing by innumerable improvements. It's small, compact, upright; occupies only 2 x 3 feet of floor space; yet in capacity matches or betters all other automatic models. One Freezer on your floor this morning is subject to a quick sale by the end of the day; even though unit profit is excellent, ready sale is prompted by good selling tactics. Fast turnover of large priced stock promises you glowing profits, and steady volume that puts you in the mighty dealer class quickly.

State and large-trade-area distributors will find this Freezer a profit diamond mine.



USE IT!

TO EXPAND

Enter a vast new market for goods allied with your regular lines. Expand your business. The Mills Freezer line automatically creates the need for Condensing Units, Hardening Cabinets, Dispensing Cabinets, Ice Cream Flavors, etc. Abundant profits in all these lines!

TO DOMINATE

To be the dominant dealer or distributor in your territory go after VOLUME! The Mills Ice Cream Freezer line makes it possible for you to practically double your business in a few short months.

TO BE FIRST

Be the first to take on this appealing new line which economic conditions of today dictate as the necessity of tomorrow. Enter in time!

YOU Mr. Distributor and Mr. Dealer

To capitalize on this choice offer, the leading distributors and dealers of the country are invited to correspond with us. Receive the full first hand facts and figures about this new selling activity. Write Mills Novelty Company, a 43-year old, $10,000,000 business built on making money for its dealers. Use the valuable coupon at the left.

MILLS AUTOMATIC ICE CREAM FREEZER

Gleaming white, briskly efficient, all alone it magically freezes 5 gallons of delicious ice cream in 10 short minutes. It's the smart fixture for today's smart ice cream merchandisers; a retail trade asset as essential as the cash register. Let us send you our full line of modern advertising. Let us show you our novel assortment of sale demonstrators and salesman helps. Let us help you make a wise and timely decision.

A $10,000,000 BUSINESS EST'D 1889

MILLS NOVELTY COMPANY, 4100 Fullerton Ave., Chicago, Illinois

G. E. Designs Mail Campaign To Double Its Canvass Results

FOLLOW-UP METHODS DEVELOPED BY DAILY

By Phil B. Redeker

CLEVELAND—Distributed upon the basis of results of a series of actual surveys in the retail selling field and with copy formulated and tempered through the results of cumulative experience in specialty merchandising, the present direct-by-mail campaigns of the refrigeration department of the General Electric Co. are representative of the scientific manner in which factors in the merchandising program are being treated by this company.

Designed to "double the results of the '25 Plan'" and to get the greatest number of prospects possible under the influence of direct mail work, the 1932 General Electric set-up on direct mail, worked out by Walter Daily, head of the sales promotion division, and his assistant, O. C. Hamilton, consists of a series of planned pieces to treat both the immediate prospect and the contact who may become a prospect in the future.

Use Separate Pieces

These two different types of prospects are treated with entirely separate sets of mailing pieces, both of which are arranged to lend the maximum amount of aid to the distributor's or dealer's selling efforts.

The earliest direct mail pieces, recalls Mr. Hamilton, were sent out without a great deal of thought as to whether the mailing was timely or the copy particularly pertinent to the type of prospects which the mailing pieces were reaching.

In the early programs seven or eight pieces were sent out in more or less hit-and-miss fashion to lists sent in by the distributors.

Later, when the need for a more systematic manner of distribution began to make itself felt, this was changed to a four-piece campaign, mailed at four different intervals throughout the year.

Under this system an unclosed prospect generally received about one piece of literature a month throughout the year in which he was retained on the files.

Repeated 'Exposures'

Direct mail at that time, therefore, more or less took on the character of repeated "exposures," and its character was closely related to that of "institutional" advertising.

Copy for these pieces was perhaps timely with respect to seasonal appeal, but hardly so with regards to the time in which it reached prospects in the "immediately ready to buy" class.

Sales promotion department "brains" felt last year that a more effective method of distribution might be worked out. Early in the Fall of 1931 they decided to go out into the field to make a survey which might shed some light on the number of prospects being reached by direct mail, and at what time after contact the first piece arrived.

Distributors Cooperate

The study was designed to show the length of the period of time over which the average prospect received direct mail literature, and the percentage of "live" prospects that were being reached.

Distributors cooperated by having their men make records along the lines that the sales promotion department desired, and in addition a special force of "canvassers" was hired to accelerate the accumulation of facts.

As the "25 Plan" had just gone into effect at that time, these canvassers made their reports on the basis of 25 canvass calls, and part of the plan for future distribution was based on average results taken from sets of 25 canvass calls.

Results of Study

The study showed that: (1) six months was the average length of time in which the prospect was "worked," before he was either sold or definitely qualified; (2) nine months was the maximum length of time devoted to a prospect; (3) it was found that almost 50 per cent of the prospects on whom salesmen called failed to receive a single piece of direct mail either because they were sold or forgotten before the mailing campaigns got under way.

The results of the "average" 25 canvass calls in terms of prospects gained by the plan were charted as is shown in figure No. 1.

An examination of the chart reveals the classification of contacts made through the "average" canvass in terms of need for refrigeration, ability to buy, and interest evidenced.

The sales promotion department, for practical purposes, has grouped together various units shown on this chart. The first grouping includes those who were not in, those who already have refrigeration, and those who really cannot afford, 11 all told out of 25 calls. There would be no reason for mailing literature to any individuals of the above mentioned groups at the present time.

In the next group are placed those who are "ready for immediate action," and they will be treated differently than the third group which is made up of "closed doors with prospects behind them." (Shown in figure No. 2.)

With these facts in front of them, the sales promotion division heads sat down to work out a program by which a greater percentage of prospects would be reached. "Timeliness" would be the keynote in the distribution scheme.

As a starter, they threw out all "telephone book" lists, deciding to send out literature only to *bona fide* prospects brought in by salesmen canvassing under the "25 Plan."

Next, they decided that these lists of prospects would have to be classified by the distributor and dealer in accordance with the classifications that came to light in the survey.

Under the present plan the distributor divides his prospect list into two groups; those who are likely to take "immediate action," and those who definitely "defer" action.

Two very different types of campaigns (with respect to copy) have been prepared for these two groups.

To assure timeliness and despatch in the distribution of the set which goes to the "immediate action" group, it was decided to supply the distributors with the literature, and to have them do the mailing themselves.

In the case of the "deferring action" group, the plan embraces a somewhat lengthy campaign with mailings at greater intervals, and the main G. E. refrigeration department office carries out the mailing mechanics on this group of prospects.

For the prospect of the moment the sales promotion department has prepared what it terms a "hotshot" campaign.

It is a three-piece campaign in which the mailing is done at intervals of a week starting as quickly as a salesman has reported a contact as a prospect who can be brought to action at the present moment.

The keynote of the copy appeal is a live reasoning aiming towards the immediate purchase of a General Electric refrigerator.

The "hotshot" campaign acts as a "safety valve" in the case of individuals who are ready and willing to buy a G. E. refrigerator, in that it is the reminder that keeps the product's name always before them.

Copy is largely of a competitive nature, in that it emphasizes the strong points in the G. E., and therefore may be a direct selling help.

The idea behind the mailings to members of the group who have both need for refrigeration and ability to buy, but who have closed their door in the salesman's face, is to "sell" an appointment to the individual prospects in this group.

In plain words, the copy in this campaign is written to break down the resistance to the specialty salesman which is engendered in some people as soon as they see him at the door. It is designed to get the salesman by the first barrier so that he can make a complete presentation of his product.

There is a third distinct campaign, which might be designated generally as a "follow through" program, in which pieces are mailed to prospects formerly on the "hotshot" list who weren't sold within 30 days after the first contact.

If the salesman reports that such prospects are still "live," and that he intends to try them again in another four or six months, the names of such prospects are placed on a special list.

For a period of four months a monthly mailing is made to this list, to keep the product and sales organization before the individual who may some day become a good prospect for refrigeration.

Direct mail programs of the G. E. refrigeration department will by no means be limited to the plans outlined above. When a special occasion arises, such as the recent announcement of the 4-year service contract, machinery can be put into motion (and was, in the instance of the 4-year contract announcement) to create a piece of direct mail literature and circularize all lists within a few days.

Selection of the various types of appeal to be stressed in direct mail copy and the actual preparation of direct mail literature calls for a great deal of studied planning.

The ordinary man generally envisions the copywriter as one who sweats over the creation of new thoughts, new appeals for each piece of copy. Such imaginings are dispelled upon introduction to G. E.'s "key to copy" chart.

Here all the tested and effective thoughts and appeals used in the past are collected and arranged for use by the copy writer when he sets out to prepare a particular piece of literature.

There are two main divisions on the chart. One division contains appeals of a non-competitive nature, and the other contains thoughts which lean to the competitive. Product utility is stressed in the former; physical construction and the advantages thereof are spotlighted in the latter.

There are two headings under each division. Under one heading is a series of what might be called "complete thoughts" and in the other are "ideas to be developed."

The complete thought is what the newspaper editor would recognize as a "headline." Example: "The heart of the refrigerator is in the mechanism."

The "incomplete thoughts" list includes salient merchandising points upon which the writer can base the main body of his copy.

Ideas Dressed with Art

Most of the sales appeal arguments are drawn from reactions brought in fresh from the "field." Not only have distributors and dealers contributed pertinent ideas, but much valuable reasoning has been obtained in surveys of user's reasons for the purchase of a G. E. refrigerator.

These main ideas are dressed up with phraseology, typography and "art," as the sales promotion men term all illustrations.

The three pieces of copy for the "hotshot" campaign are built along different types of appeals, but they dovetail into one another to emphasize with increasing directness the reasons for immediate purchase.

As these pieces are directed to people who have evinced an interest in the purchase of electric refrigeration, it is assumed that the pioneer work has been accomplished, and that the prospect's confusion lies in deciding when to buy and what make to buy.

The first piece is designed primarily to sell the "salesman," to expound his ability to answer all questions on refrigeration and his eagerness to assist the prospect to make the proper purchase.

Concentrates on Economy Argument

The second mailing concentrates on the economy argument—explaining to the housewife the many reasons why she should take immediate advantage of the economies afforded by an electric refrigerator.

General figures drawn from user's statements are used to demonstrate the savings to be afforded through reduced refrigeration operating cost, minimizing of food spoilage, and by quantity purchasing. This piece is designed to set the housewife thinking in terms of what she might save with an electric refrigerator.

'Question and Answer' Piece

Copy in the third and final piece is of a "self-testimony" or "question and answer" nature. It asks a series of questions, the answers to which are fairly obvious and which are designed to drive home the immediate need for the purchase of an electric refrigerator, and especially a G. E. machine.

The psychological effect of presenting a series of questions, will get the prospect to thinking on the subject of refrigeration whether he or she answers the questions or not, the sales promotion department feels.

For the "holdoffs," who have no inclination towards an immediate purchase, but who may be active prospects in the future, the copy prepared is designed to sell them first on the need for electric refrigeration, and then to present sales appeal points such as pride of possession, convenience, etc., as well as economy.

Size of Space Used

One piece, for instance, goes to great lengths to show that a refrigerator takes up only 4 sq. ft. of floor space, this argument being advanced for the benefit of the woman active in her kitchen who fears that the refrigerator might be a cumbersome piece of machinery to have in the small kitchens now being built.

Another piece emphasizes the fact that "over four million women already have G. E. refrigerators in their home," there being a double basis of appeal here.

This figure lends prestige to the organization, and at the same time plays upon the "keeping up with the Joneses" tendency that manifests itself in Mrs. Average American Housewife.

The final piece in this series strikes home strongly with the economy argument, and makes an appeal for the granting of an interview to the salesman, this piece being the culmination of a carefully worked out plan to reopen the door that once may have been closed upon the salesman.

Doubling the Results

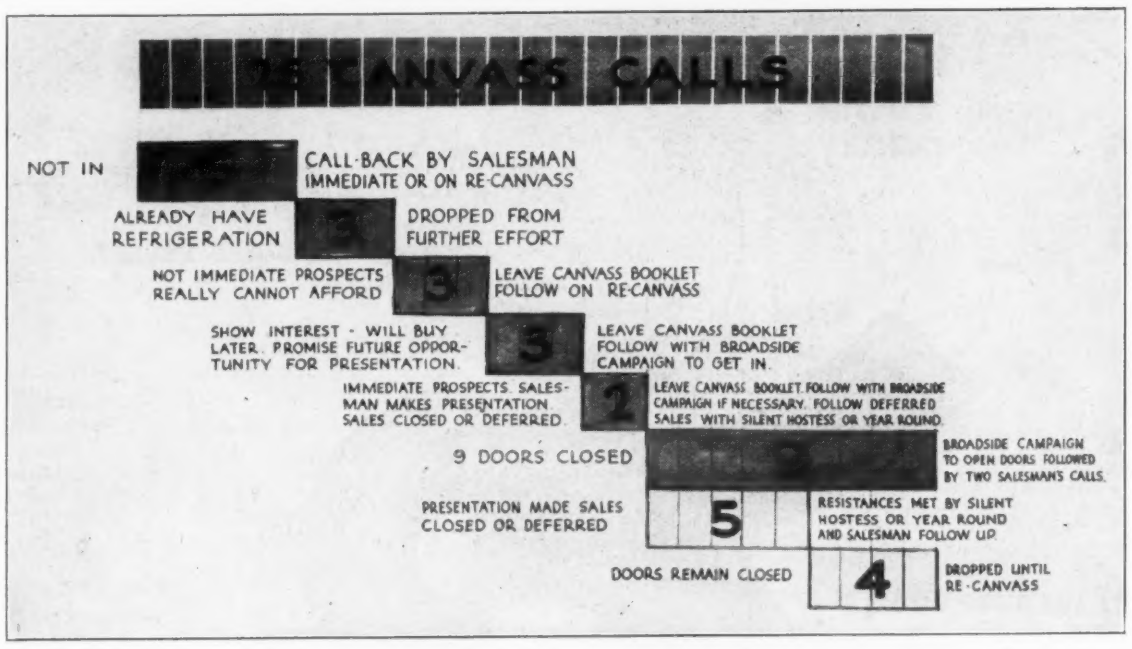


Fig. 1 shows the breakdown of a typical group of 25 canvass calls in terms of possible prospects.

Develops Plan

WALTER DAILY

General Electric advertising and sales promotion manager worked out the direct mail program described on this page.

Helping the Salesman Make More Sales

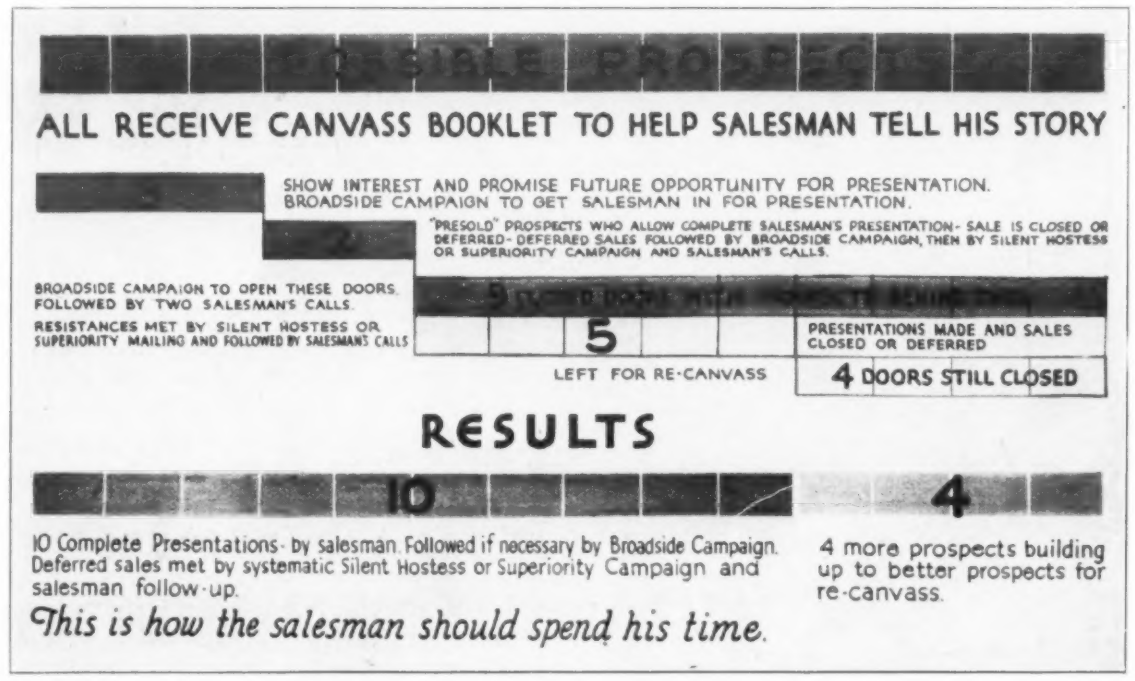


Fig. 2 shows the type of mail campaigns planned for the 14 possible prospects gained from an average "25 canvass."

KELVINATOR NAMES ILLINOIS DISTRIBUTOR

PEORIA, Ill.—The appointment of the Isaac Walker Hardware Co. as Kelvinator distributor for central Illinois has been announced by Kelvinator Corp. It has been given a franchise of 68 counties in Illinois, covering almost the entire state outside of the Chicago area.

The Isaac Walker firm was founded in 1842; its present personnel includes John T. Neilson, president; William A. Jack, vice president; William D. Upton, secretary; Ward Walker, treasurer; and Roy Swann, director and buyer.

O. J. Hamm, Charles Marvin, and K. A. Adams, have been appointed to contact dealers, with headquarters at Peoria, Decatur, and Galesburg. The Washington Supply Co., former Kelvinator distributor, will handle retail sales in the Peoria territory. George Rickenberg is president of the company, and John Fleming heads the refrigeration department.

NEW FARADAY, MAJESTIC MODELS SHOWN IN EXHIBIT

ASHEVILLE, N. C.—Not to be outdone by H. A. Dunham, manager of Dunham's Music House, who recently secured permission for a pre-announcement showing of the new Majestic model number 335 at the recent Asheville Mechanical Refrigerator Show, H. E. McDonnold, manager of the Asheville Gas Co., obtained special pre-view privileges for displaying the new Faraday refrigerators at the Normal Business Exposition, held here April 4-9.

Other dealers who exhibited at the exposition included the Reusing Radio and Refrigerating Co., Frigidaire dealer, and the Carolina Power and Light Co., handling both General Electric and Kelvinator lines. Models of Electrolux and Faraday were shown by the Asheville Gas Co. which has just moved to a larger corner location in the Grove Arcade Bldg., Battery Park Ave. and Page St., from its former Arcade rooms at 23 O. Henry Ave.

The exposition, which featured not only kitchen equipment, but also hardware, furniture, automobiles, and other business displays, was a part of the local Normal Business Council's campaign to eliminate unemployment.

SERVEL DEALER AWARDS UNIT IN THEATRE CONTEST

PORTLAND, Ore.—The Radio Sales Association, dealer for Servel Hermetic electric refrigerators in this city, recently conducted a sales contest in connection with the RKO-Orpheum theatre here, offering as a grand prize a new Servel Hermetic refrigerator.

Theatre goers deposited ticket stubs at the door, retaining half of the ticket until the drawing of the lucky number. The contest proved an excellent means of gaining new refrigerator prospects.

After the drawing a number of certificates were mailed to the ticket depositors stating that an allowance would be made on the purchase of a Servel Hermetic refrigerator on or before a certain date. A feature of the event was the displaying of Servel Hermetic models at the theatre during the contest.

The Radio Sales Association is a dealer under Harper-Meggee, Inc., Servel distributor in the Northwest territory.

TENNESSEE DISTRIBUTOR FOR LEONARD APPOINTED

KNOXVILLE, Tenn.—Announcement of the appointment of the McClung Co. here as Leonard electric refrigerator distributor in eastern Tennessee has been made by the Leonard Refrigerator Co.

The McClung Co., of which W. N. Bonham is president, and Lee Ross refrigeration and radio department manager, was established in 1884 as a hardware jobbing firm.

Its plant consists of four buildings with a total floor space of 4½ acres. The McClung Co. also distributes Dupont products, and Atwater Kent radio.

KELVINATOR PURCHASED FOR ZOO'S FOOD STORAGE

MADISON, Wis.—Nero, the African lion and his family; the leopards, bears, wolves, foxes, and other carnivora of the Henry Vilas Park Zoo, are now assured of the freshest of horse meat and fish following the installation of Kelvinator equipment in the Lion House.

The problem of keeping a plentiful supply of fresh meat had long been a problem of F. W. Winkleman, Zoo director for 14 years.

Equipment installed was a 9x6x9 cooler, an XO-140 coil, and a WFB-151 condensing unit. A temperature of around 38° is maintained. The sale was made by Otto Hague of the Harloff Electric Co.

Leading Manufacturers Report Sales and Stock on Hand

Geographical Distribution Is Latest Feature of Nema Statistics

First Quarter Figures of 11 Manufacturers Show Sales and Stocks on Hand

By F. M. COCKRELL

NEW YORK CITY—Supplementing the quarterly sales figures of the 11 manufacturing companies represented in the Refrigeration Division of National Electrical Manufacturers' Association (Nema) published in last week's issue of ELECTRIC REFRIGERATION NEWS (April 27), a detailed analysis of both sales and stocks for January, February and March, together with the geographical distribution of sales for January and February, are given herewith.

In addition, correct figures for sales of household and commercial equipment for the year 1931, previously published on page 51 of the 1932 REFRIGERATION DIRECTORY and MARKET DATA BOOK, are reported.

Also given are corrected figures on sales of water coolers by months for 1930 and 1931. The water cooler figures appearing on pages 51 to 58 of the DIRECTORY do not show the correct separation of sales of "water coolers with high sides" and "water coolers with no high sides." The new figures show the water cooler sales in detail.

Comprising the membership of the Nema Refrigeration Division are the following companies: Copeland Products, Inc., Mt. Clemens, Mich.; Frigidaire Corp., Dayton, Ohio; General Electric Co., Cleveland; Grigsby-Grunow Co. (Majestic), Chicago; Kelvinator Corp. (including Leonard), Detroit; Servel, Inc., Evansville, Ind.; Tennessee Furniture Corp. (Cavalier), Chattanooga, Tenn.; Trupar Mfg. Co. (Mayflower), Dayton, Ohio; Universal Cooler Corp., Detroit; and Westinghouse Electric and Mfg. Co., Mansfield, Ohio.

The Majestic figures are included in the Nema totals for the first time in 1932.

Referring to the three-column tabulation at the right, please note that the numbering system for the various items begins with number 61 in order to conform to the 1932 Nema standard form for sales reports. The items numbered below 61, not yet released for publication, are used to indicate sales and stocks of refrigerator cabinets according to size and price class.

The two-column table below gives the distribution by states, including exports, for the months of January and February. March distribution statistics have not yet been released by the Nema headquarters.

In the April 27 issue of ELECTRIC REFRIGERATION NEWS were published the quarterly sales of household and commercial equipment as billed to distributors and dealers, also a tabulation showing the comparative sales figures for each month of the first quarters in 1930, 1931 and 1932.

Arrangements have not yet been completed for collecting regular monthly statistics from other companies not included in the association. If no satisfactory plan is worked out for the collection of this data by an association, the work will be undertaken by ELECTRIC REFRIGERATION NEWS in the near future.

Analysis of Nema Sales and Stocks—First Quarter, 1932

Using Factory or Branch Invoice Net Prices to Distributors and Dealers, Including Export.

HOUSEHOLD	JANUARY, 1932 Sales—As Billed to Distributors and Dealers		Stocks at End of January, 1932			
			Factory, Branch & Warehouse		Distributors and Dealers	
	Quantity	Dollars	Quantity	Dollars	Quantity	Dollars
61. Total (cabinets only)	5,590	257,061.00	130,367	5,535,739.35	22,299	943,924.00
62. Total (systems included)	23,202	2,619,960.76	59,478	7,016,161.69	36,984	4,274,021.56
63. Separate Household Systems	5,275	362,133.00	103,261	10,017,208.00	22,198	2,308,244.00
64. Separate Household Low Sides	3,050	57,287.00	9,848	178,228.00	2,147	51,070.00
65. Total Items 62, 63 and 64	**31,527**	.....	**172,223**	.....	**61,329**	.....
66. High Sides, ¼-hp. and Less	1,267	71,155.35	5,359	280,446.00	925	53,662.00
67. Parts and Miscellaneous (household)	....	16,891.62	....	30,333.37	....	.....
68. Total of 61, 62, 63, 64, 66 and 67	....	**3,384,488.73**	....	**23,058,116.41**	....	**7,630,921.56**
COMMERCIAL						
71. Water Coolers with High Sides	403	50,655.31	11,850	1,726,077.64	2,920	422,452.31
72. Water Coolers with No High Sides	141	7,561.00	1,977	77,814.00	869	32,900.00
73. Ice Cream Cabinets with High Sides	134	20,886.00	2,177	366,027.00	184	30,687.00
74. Ice Cream Cabinets with No High Sides	532	67,418.00	3,594	413,191.00	478	56,421.00
75. Milk Coolers with No High Sides	....	.....	6	1,724.00	65	12,066.00
76. Room Coolers with No High Sides	6	771.00	127	20,537.00	71	11,349.00
77. Counters and Commercial Boxes	69	27,189.99	1,469	421,717.00	528	169,718.00
78.	....	.....	....	.....	....	.....
79. Extra Low Sides (commercial)	4,001	157,284.40	24,071	1,173,550.24	7,808	324,812.00
80. Extra High Sides 1-3 hp. and Up	3,583	396,418.90	13,516	1,763,327.76	3,966	569,458.00
81. Parts and Miscellaneous (commercial)	....	45,422.96	....	152,699.73	....	12,280.00
82. Total 71 to 76 inclusive and 79	**5,217**	.....	**43,802**	.....	**12,395**	.....
83. Total Items 65 and 82	**36,744**	.....	**216,025**	.....	**73,724**	.....
84. Total Commercial (71 to 81 inclusive)	....	**773,607.56**	....	**6,116,665.42**	....	**1,642,143.31**
85. Total Dollars (68 and 84)	....	**4,158,096.29**	....	**29,374,102.62**	....	**9,273,064.81**

EDITOR'S NOTE: Above report for January does not state the number of manufacturers reporting, or the percentage of total, and figures are not prorated to correspond with total sales of 11 companies, as has been done for February and March below. The indications that are the values for Item 85 are too low to include all companies.

HOUSEHOLD	FEBRUARY, 1932 Sales—As Billed to Distributors and Dealers		*9 Mfrs.—90.91% Stocks at End of February, 1932		*6 Mfrs.—61.92%	
			Factory, Branch & Warehouse		Distributors and Dealers	
	Quantity	Dollars	Quantity	Dollars	Quantity	Dollars
61. Total (cabinets only)	9,007	400,662.99	44,274	1,869,927.00	591	40,019.00
62. Total (systems included)	30,830	3,497,536.13	177,888	22,836,362.56	67,132	8,506,499.54
63. Separate Household Systems	7,813	533,947.50	15,824	1,272,554.00	658	66,861.00
64. Separate Household Low Sides	3,466	63,057.75	6,846	160,845.00	2,206	51,092.00
65. Total Items 62, 63 and 64	**42,109**	.....	**200,558**	.....	**69,996**	.....
66. High Sides, ¼-hp. and Less	2,646	153,290.17	7,141	439,874.25	933	54,241.00
67. Parts and Miscellaneous (household)	....	20,944.11	....	29,790.32	....	.....
68. Total of 61, 62, 63, 64, 66 and 67	....	**4,659,437.66**	....	**26,609,353.13**	....	**8,718,712.54**
COMMERCIAL						
71. Water Coolers with High Sides	739	86,193.50	14,301	1,898,014.50	3,609	446,739.00
72. Water Coolers with No High Sides	124	6,640.00	574	31,295.00	340	17,717.00
73. Ice Cream Cabinets with High Sides	502	74,461.00	3,980	594,844.00	321	46,590.00
74. Ice Cream Cabinets with No High Sides	793	101,475.00	3,919	475,068.00	477	57,598.00
75. Milk Coolers with No High Sides	4	807.00	4	1,096.00	67	12,429.00
76. Room Coolers with No High Sides	7	960.00	151	24,108.00	79	12,515.00
77. Counters and Commercial Boxes	49	19,516.00	1,454	417,236.00	548	174,385.00
78.	....	.....	....	.....	....	.....
79. Extra Low Sides (commercial)	6,766	268,712.94	23,503	909,829.58	7,775	333,670.50
80. Extra High Sides 1-3 hp. and Up	5,524	678,728.87	14,434	1,862,480.52	4,436	643,850.00
81. Parts and Miscellaneous (commercial)	....	46,127.97	....	107,889.28	....	11,206.00
82. Total 71 to 76 inclusive and 79	**8,935**	.....	**46,432**	.....	**12,663**	.....
83. Total Items 65 and 82	**51,044**	.....	**246,990**	.....	**82,664**	.....
84. Total Commercial (71 to 81 inclusive)	....	**1,283,622.28**	....	**6,321,860.68**	....	**1,756,699.50**
85. Total Dollars (68 and 84)	....	**5,943,059.94**	....	**33,140,657.02**	....	**10,475,412.04**
Line 85 prorated to correspond with total sales of 11 companies.				**$35,673,473.00**		**$16,917,655.00**

No. of Mfrs. reporting on Line 85 and their % of total sales. 10 Mfrs.—92.90%. 6 Mfrs.—61.92%.

*Shows number of manufacturers reporting on items above line 85 in these double columns; also the % of total sales for the month made by these companies.

HOUSEHOLD	MARCH, 1932 Sales—As Billed to Distributors and Dealers		*9 Mfrs.—94.86% Stocks at End of March, 1932		*6 Mfrs.—67.37%	
			Factory, Branch & Warehouse		Distributors and Dealers	
	Quantity	Dollars	Quantity	Dollars	Quantity	Dollars
61. Total (cabinets only)	14,523	529,804.00	35,780	1,387,166.95	518	40,481.00
62. Total (systems included)	57,135	6,261,386.79	194,625	24,453,559.14	75,467	8,972,773.03
63. Separate Household Systems	13,202	822,927.75	9,530	664,153.00	635	52,756.00
64. Separate Household Low Sides	2,878	58,395.50	7,536	153,406.00	1,781	44,182.00
65. Total Items 62, 63 and 64	**73,215**	.....	**211,691**	.....	**77,883**	.....
66. High Sides, ¼-hp. and Less	2,099	116,766.83	4,335	253,114.90	1,012	57,411.00
67. Parts and Miscellaneous (household)	....	41,059.43	....	37,466.68	....	.....
68. Total of 61, 62, 63, 64, 66 and 67	....	**7,830,340.30**	....	**26,948,866.67**	....	**9,167,603.03**
COMMERCIAL						
71. Water Coolers with High Sides	1,091	124,041.50	15,035	1,878,065.50	3,733	452,325.00
72. Water Coolers with No High Sides	127	6,686.00	511	28,708.00	363	19,756.00
73. Ice Cream Cabinets with High Sides	1,065	168,038.00	5,067	753,479.00	337	49,087.00
74. Ice Cream Cabinets with No High Sides	1,060	135,427.00	5,408	638,148.00	548	65,788.00
75. Milk Coolers with No High Sides	6	1,110.00	5	1,277.00	66	12,115.00
76. Room Coolers with No High Sides	125	12,957.00	771	84,223.00	146	18,232.00
77. Counters and Commercial Boxes	79	32,493.00	1,404	401,840.00	524	172,433.00
78.	....	.....	....	.....	....	.....
79. Extra Low Sides (commercial)	7,400	302,543.52	22,409	918,561.94	7,831	333,822.00
80. Extra High Sides 1-3 hp. and Up	6,754	765,445.10	15,597	1,846,388.96	4,678	622,153.86
81. Parts and Miscellaneous (commercial)	....	27,083.63	....	116,033.30	....	8,539.00
82. Total 71 to 76 inclusive and 79	**10,874**	.....	**49,206**	.....	**13,024**	.....
83. Total Items 65 and 82	**84,089**	.....	**260,897**	.....	**90,907**	.....
84. Total Commercial (71 to 81 inclusive)	....	**1,575,824.75**	....	**6,666,724.70**	....	**1,754,250.86**
85. Total Dollars (68 and 84)	....	**9,406,165.05**	....	**33,330,866.67**	....	**10,921,853.89**
Line 85 prorated to correspond with total sales of 11 companies.				**$35,130,703.00**		**$16,211,747.00**

No. of Mfrs. reporting on Line 85 and their % of total sales. 10 Mfrs.—96.30%. 6 Mfrs.—67.37%.

*Shows number of manufacturers reporting on items above line 85 in these double columns; also the % of total sales for the month made by these companies.

Distribution by States (and Exports) For January and February

States and Territories	JANUARY, 1932 (11 Companies Reporting) Household Low Sides	Commercial Low Sides	FEBRUARY, 1932 (8 Companies Reporting on Household; 5 Companies Reporting on Commercial) Household Low Sides	Commercial Low Sides
Connecticut	381	59	539	69
Maine	181	25	140	21
Massachusetts	1,018	142	1,380	116
New Hampshire	37	12	52	11
Rhode Island	143	24	156	16
Vermont	50	6	32	9
New England Total	**1,810**	**269**	**2,299**	**242**
Delaware	108	31	136	32
Maryland	962	112	1,258	94
New Jersey	1,493	148	1,765	173
New York	7,301	916	7,194	574
Pennsylvania	4,102	505	3,142	375
Eastern Total	**13,966**	**1,712**	**13,495**	**1,248**
Kentucky	255	28	378	44
Ohio	1,223	156	1,920	203
West Virginia	579	31	621	31
East Central Total	**2,057**	**215**	**2,919**	**278**
Alabama	97	38	155	29
Florida	276	56	194	40
Georgia	199	32	251	34
North Carolina	213	41	260	51
South Carolina	77	18	124	23
Tennessee	295	91	267	57
Virginia	575	57	729	71
Southeastern Total	**1,732**	**333**	**1,980**	**305**
Illinois	1,692	409	1,797	766
Indiana	359	67	363	163
Michigan	1,522	236	1,494	166
Wisconsin	630	65	645	150
Great Lakes Total	**4,203**	**777**	**4,299**	**1,245**
Minnesota	615	59	834	46
North Dakota	35	7	64	6
South Dakota	50	1	50	...
North Central Total	**700**	**67**	**948**	**52**
Iowa	446	33	286	39
Kansas	343	27	195	39
Missouri	1,231	158	1,401	107
Nebraska	192	14	284	22
Middle West Total	**2,212**	**232**	**2,166**	**207**
Arizona	3	...	47	3
California	789	236	1,940	153
Nevada	16	3	46	1
Pacific Coast Total	**808**	**239**	**2,033**	**157**
Idaho	85	16	63	1
Montana	100	2	47	26
Oregon	187	16	132	12
Utah	66	4	79	2
Washington	180	41	157	17
Northwestern	**618**	**79**	**478**	**58**
Colorado	136	55	294	39
New Mexico	15	6	25	6
Wyoming	11	4	17	9
Rocky Mountain Total	**162**	**65**	**336**	**54**
Arkansas	69	8	159	14
Louisiana	123	19	167	65
Mississippi	52	11	61	19
Oklahoma	201	19	150	33
Texas	603	44	845	189
Southwestern Total	**1,048**	**101**	**1,382**	**320**
Total United States	**29,322**	**4,089**	**32,335**	**4,166**
Canada	882	214	962	119
Other Foreign (including U. S. Possessions)	1,121	618	2,637	1,767
Total for World	**31,325**	**4,921**	**35,934**	**6,052**

Corrections in 1931 Nema Statistics

Explanation: Line 24 refers to water coolers with high sides; line 25 refers to water coolers with no high sides.

	Line 24	Line 25
Total, year 1928	11,522	1,670
Total, year 1929	20,819	7,362
January, 1930	647	323
February	1,592	461
March	3,023	532
Total, first quarter	5,262	1,321
April, 1930	2,650	859
May	3,525	804
June	3,990	679
Total, second quarter	10,165	2,342
July, 1930	3,700	454
August	3,517	357
September	1,627	401
Total, third quarter	8,884	1,212
October, 1930	875	394
November	739	312
December	701	147
Total, fourth quarter	2,315	853
Total, year 1930	26,586	5,728
January, 1931	1,262	176
February	927	121
March	893	231
Total, first quarter	3,082	588
April, 1931	1,844	256
May	2,318	368
June	2,592	504
Total, second quarter	6,754	1,128
July, 1931	3,843	329
August	1,450	307
September	1,053	212
Total, third quarter	6,346	843

The breakdown of water cooler sales for the remaining (fourth) quarter of 1931 is given in the 1932 Refrigeration Directory and Market Data Book as follows:

October, 1931	725	278
November	442	152
December	483	223
Total, fourth quarter	1,650	653

YEAR ENDING DEC. 31, 1931, TOTAL FOR 10 COMPANIES

Cabinets with Systems
(One system for each cabinet)
Net Food Space

HOUSEHOLD	Quantity	Dollars
1. Under 4.00 cu. ft.	2,940	279,468.89
2. 4 to 4.99 cu. ft.	77,644*	7,531,882.56
3. 5 to 6.99 cu. ft.	86,697	10,194,289.73
4. 7 to 8.99 cu. ft.	23,335	3,453,598.86
5. 9 to 11.99 cu. ft.	2,886	601,129.63
6. 12 to 18.00 cu. ft.	826	221,821.68
Cabinets only (No high or low sides) Net Food Space		
7. Under 4.00 cu. ft.	24,231	585,023.00
8. 4 to 4.99 cu. ft.	181,361*	5,137,953.99
9. 5 to 6.99 cu. ft.	299,659*	12,463,182.80
10. 7 to 8.99 cu. ft.	42,587*	3,122,182.44
11. 9 to 11.99 cu. ft.	15,987*	1,599,877.00
12. 12 to 18.00 cu. ft.	9,250*	1,352,697.20
13. Total Items 1 to 6 inclusive	194,328*	22,282,191.35
14. Total Items 7 to 12 inclusive	573,075*	24,260,916.43
15. Total Items 13 to 14 inclusive	767,403*	46,543,107.78
16. Separate Systems	278,115*	31,547,780.88
17. Separate Low Sides	329,913	6,706,250.06
18. Total Items 13, 16 and 17	**802,356**	.....
19. High Sides, ¼-hp. and Less	319,891*	17,589,414.41
20. Parts and Miscellaneous	.....	743,303.57*
21.	.....	.....
22. Total of 15, 16, 17, 19, 20, and 21	.....	**103,129,856.70***
23.	.....	.....
COMMERCIAL		
24. Water Coolers with High Sides	17,832*	2,282,717.98
25. Water Coolers with No High Sides	3,217*	195,596.00
26. Ice Cream Cabinets with High Sides	20,301	3,698,703.14
27. Ice Cream Cabinets with No High Sides	17,352*	2,308,731.93
28. Milk Coolers with No High Sides	9	2,303.00
29. Room Coolers with No High Sides	285	43,069.00
30. Counters and Commercial Boxes	1,522	480,216.00
31.	.....	.....
32. Extra Low Sides (commercial)	109,735*	4,462,318.19
33. Extra High Sides	83,345*	10,711,040.76
34. Parts and Miscellaneous	.....	507,848.85
35. Total Items 24 to 29 inclusive and 32	**168,731**	.....
36. Total Items 18 and 35	**971,087**	.....
37. Total Commercial (24 to 34 inclusive)	.....	**24,692,544.85***
38. Total Dollars (22 and 37)	.....	**127,822,401.55**

*Corrected Figures.

FIVE TRAINS OF UNITS LEAVE NORGE PLANT

(Concluded from Page 1, Column 5)

looking the part, presented Major Blood with a floral bouquet on behalf of the city fathers. The card on the bouquet read: "A grateful city extends its best wishes to Norge." Moving pictures were taken of the presentation.

During the present peak production load at the Muskegon Heights Norge plant, about 1,200 men have been on the Norge factory payroll there, drawing an aggregate of $110,000 a month.

Regular Shipment Unaffected

Regular shipments of Norge refrigerators during the month of April were not held up in order to make a big showing with the shipment of five trainloads simultaneously, maintains "Trainload Johnny" Knapp, vice president in charge of sales of the Norge Corp.

Working seven days a week and night shifts as well, the Muskegon Heights plant has been producing some 900 refrigerators daily, hence the five trainloads represented less than nine days' production.

The five trains headed for the following cities:

1. "Eastern Special"—Buffalo; Rochester, N. Y.; Syracuse, N. Y.; Albany, N. Y.; and Springfield, Mass.
2. "Atlantic Special"—Pittsburgh; Washington, D. C.; Baltimore; Philadelphia; and New York City.
3. "Dixie Flyer"—Charleston, W. Va.; Richmond, Va.; Memphis, Tenn.; Nashville, Tenn.; Birmingham, Ala.; Atlanta; New Orleans, and Jacksonville, Fla.
4. "Southwestern Special"—Indianapolis; Cincinnati; Louisville, Ky.; Kansas City, Mo.; Little Rock, Ark.; Oklahoma City; Dallas, Tex.; Houston, Tex.; and San Antonio, Tex.
5. "Pacific Coast Special"—Waterloo, Iowa; Omaha; Hastings, Nebr.; Denver; Salt Lake City, Utah; Los Angeles; San Francisco; Portland, Ore.; and Seattle.

On the same day a boatload of Norge refrigerators steamed out of Muskegon harbor for Chicago and Milwaukee.

Norge Officials Present

In addition to Major Blood and Mr. Knapp, the following Norge officials were present:

C. D. Donaven, treasurer and vice president in charge of production; M. G. O'Harra, eastern sales manager; R. E. Densmore, western sales manager; James A. Sterling, sales promotion manager; A. D. McCaughna, sales department; Herbert Morley, quality manager of all Norge manufacturing operations.

H. L. Spencer, factory manager; E. C. Graham, production manager; J. Clarke, supervisor of plant engineering and efficiency; R. B. Case, factory superintendent; H. L. Darbyshire, chief engineer; G. P. Kennedy, chief inspector; L. H. Miller, chemist.

H. Jewell, assistant production manager; C. X. Engle, office manager; R. L. Ellwanger, assistant chief inspector; H. L. Cook, ceramic engineer; T. Buit, foreman porcelain department.

L. Kraft, foreman, porcelain department; R. LeBoeuf, foreman, steel department; F. Snyder, foreman, finishing department; P. Nordhoff, foreman, cabinet assembly; G. Bassett, foreman, trim line; L. Battersby, foreman, final assembly.

V. Rice, foreman, unit assembly; L. A. Krier, head shipper; R. Smith, foreman, wood-working department; N. Hennan, tool room foreman, and J. Zoerhyde, foreman, rough cut department.

Also present were A. L. Zimmerman, president of the Republic Radio Corp., Michigan distributor for Norge; John H. Hart, first vice president of the First Wayne National Bank of Detroit; and Howard Blood, Jr.

FADA CHANGES FIRM NAME, COMBINES FUNCTIONS

(Concluded from Page 1, Column 1)

all of the capital stock, not previously owned, of Fada Radio, Ltd., Toronto, Canada, was made.

For the past eight years, Andrea Mfg. Co. has operated as purely a manufacturing organization, producing the products for sale by F. A. D. Andrea, Inc.

"Henceforth, both the manufacturing and marketing organizations will operate as a single unit under the new name, manufacturing and selling Fada radio and other Fada electric products," Mr. Andrea said.

TOLEDO DEALERS ORGANIZE REFRIGERATION BUREAU

TOLEDO—Five electric refrigerator distributors were elected to the board of control of the newly organized Toledo Electric Refrigerator Association at its first meeting last week.

H. G. Bogart of the H. G. Bogart Co., General Electric distributor; James Aitken of the Aitken Radio Co.; W. Wemmer of the Heat & Power Engineering Co., Kelvinator; Jerry Manore of the Manore Sales & Service Co., Copeland; and Stanley Roberts of the Roberts-Toledo Co., Majestic, comprise the new board of control.

Veteran Dies

CHARLES L. EDGAR
President of Boston Edison Co. for 32 years died April 13

Letters from Readers

(Concluded from Page 8, Column 4)

petitors together, and sometimes the reaction of the competitors is comparable to the effect radio broadcasting from Europe has had on this country. Americans have learned through radio and other contacts with foreign lands that perhaps these people are not such bad eggs after all. Similarly, competitors who have made it a point to keep out of one another's sight until brought together by means of an association, learn that the other fellow hasn't really got horns.

To condemn associations, such as you have done, you must condemn other agencies which supplement the work of their clients, subscribers, or whatever you wish to call them. You must condemn advertising agencies, public utilities, the United States Chamber of Commerce, American Legion, Red Cross, Boy Scouts of America and all research organizations. To bring this into your own backyard, you must condemn the cooperative campaign fostered by the electric refrigeration industry, that alert group which has made possible the existence of ELECTRIC REFRIGERATION NEWS and its associated publications.

Fortunately for the electric refrigeration industry, its cooperative campaign acts as a supplement to the millions spent by its individual companies. Unfortunately, this same condition does not obtain in a majority of industries. This is another reason for the organization of a trade association, which you have rightfully said is usually incorporated "not for pecuniary profit." Not, however, for the same reason as you have inferred. A trip to a lawyer's office will inform you that incorporation is for the protection of the association's members.

These industries, whose companies do not have the millions to spend, form an association to do a job collectively, which they do not feel they can do individually. As a result, they build up an agency which attempts to do whatever job is outlined on a scale comparable with that of competing industries. Sometimes it takes a few years to build these associations to a point where they can perform their assigned task, but during the building process, you may rest assured that no loafing is being done.

A volume could be written in answer to your editorial. As a matter of fact, the books which have been written on trade associations and their work would keep you in reading material for many months.

If you will but accept the invitation which I sent you a few days ago to attend the meeting of the Porcelain Enamel Institute in Cleveland, May 26, I think you will have good cause to retract your statement that trade associations are a "racket."

GEORGE P. MACKNIGHT,
Director of Publicity.

Answer:

ELECTRIC REFRIGERATION NEWS did not condemn *associations* as being rackets, but *rackets* operated under the name of associations.

Editor.

Blush with Pride Department

Bohn Refrigerator Co.
St. Paul, Minn.
April 26, 1932.

Editor:

I wish to take this occasion not only to compliment but to thank you for the very fine job you have done up to date on combatting the proposed refrigerator sales tax.

G. C. BOHN,
President.

HOME EC WOMEN TO GET SALES TRAINING

CLEVELAND—Plans of the General Electric refrigeration department to educate home service directors in all parts of the country along sales lines in order that they, as well as salesmen, might sell electric refrigerators, will be carried out within the next few weeks by Miss Edwina Nolan, director of the home service department here.

Miss Nolan, who recently returned to Cleveland after attending conferences in New York City and Buffalo, is planning now to make several western trips to address a series of home service directors' meetings. Her plans also call for a number of meetings with home service directors of utilities outlets for General Electric refrigerators.

Earlier this year she held a number of meetings with southern utility home service workers and made a partial survey of the work being accomplished in the South with the result that she reported that wherever home service directors have been actively engaged in selling as well as demonstrating, sales of General Electric refrigerators have shown a decided increase.

An important adjunct to the home service sales educational plan of the General Electric refrigeration department is the recent establishment of a series of home service and sales correspondence courses for home service directors.

Although all of the lessons in this course have not been prepared as yet, more than 200 home service workers in the field, including a large number of utility employes, have enrolled for the initial lesson.

The correspondence course activities are being handled by Miss Marcella Anklam of the sales promotion division and Miss Grace Poslar of the merchandising division. Miss Poslar has been transferred recently from secretarial duties in the merchandising division to the home service institute where she assists Miss Nolan.

'Thanks, Aunt Edwina'

Edwina Nolan, General Electric home economist, treats Kitty Lou Dow, daughter of Paul Dow, director of G. E. Refrigeration Institute, to a frozen popsicle.

How To Sell Refrigerators

As Told By S. D. Bartlett, G. E. Salesman

SPRINGFIELD, Mass.—The money saved through ownership of an electric refrigerator is the appeal made by S. D. Bartlett, top-notcher in the retail sales organization of Breckenridge, Inc., General Electric dealer, here.

Mr. Bartlett, who has been selling refrigerators since September, 1931, leads the retail salesmen of his organization, and received a grade of 98.3 in the correspondence sales course of the General Electric refrigeration department.

In a recent sales contest, he won out by closing three sales on the final day, breaking a tie with his nearest competitor in the organization.

Enumerates Savings

Saving in time and strength required to do the housework, saving in operating expense, saving in purchase prices and marketing time by buying in quantity, saving in avoidance of food spoilage, and saving in doctors' bills, are all stressed by Mr. Bartlett.

Quality and long life in the product harmonize with this sales talk better than the attempt to sell on price, he finds. He learns, moreover, that this appeal reaches families of all classes and circumstances.

25 Canvass Calls Daily

"I make 25 new canvass calls every morning," he says. "Names of prospects are received in various ways. They may be taken from the city or telephone directory. Many of the best ones are obtained from persons already numbered as refrigerator owners.

"I bring the product to the attention of the housewife and present my case in outline. Before leaving I try, if possible, to arrange an evening interview with husband and wife. Generally this is done where a real selling opportunity exists, and in the meanwhile the wife is partly sold on points that directly affect her interest. That helps when the real selling job is underway.

Sales Made in Evenings

"Most of my sales are made by these evening calls. I have not missed more than three evenings since last September. In selling the product I stress the quality note from the start. Where it is necessary to sell the idea of electric refrigeration as a general proposition, the question of getting maximum value and largest ultimate economy logically involves the element of quality.

"From quality in the working mechanism the attention is directed to quality in the cabinet and general merit of a good design. Each item in the unit is shown and described from that angle.

"Every step in the demonstration is so directed as to draw a 'yes' from the prospect. This affirmative mood or 'yes' psychology is sustained and increased in such a manner that the prospect is prepared to sign on the dotted line as the culminating event.

"This does not come, ordinarily, until opportunity has been given to try the article in the home. The direct objective of every evening call is to obtain permission to send the machine in for trial and observation. It may take until midnight or later to bring this about. Sometimes I stand for an hour or more, as if ready to leave, before this vital point is attained.

"I had an example of this only recently. When I went to make my evening call at a certain household, obviously not stinted for funds, I found the man in a resistant state.

Reverses Price Objection

"He said I wanted too much money, and told where he could buy refrigerators for less. I asked him what kind of car he drove, and he named a high-priced make.

"That furnished me a good opening, which I utilized and followed up in a consistent way, though it was a real battle to get consent to have a product installed for trial. With that, the hard part was over.

"One of the most essential things is to employ the good will that arises when a customer is satisfied and pleased with a good article for the opening of new opportunities for selling. The owner who believes thoroughly in the worth of the device becomes a first-class medium for winning the attention and favor of others, if this interest is utilized skilfully."

200 PROSPECTS SECURED AT MILWAUKEE EXHIBITION

MILWAUKEE—More than 200 prospects for General Electric kitchen appliances were obtained through the E. H. Schaefer Corp. display at the Milwaukee Home Show recently.

The display included a model kitchen, designed under the General Electric Kitchen Institute planning service, and developed under the supervision of C. M. John, retail range sales manager.

So many people thronged the booth, according to Mr. John, that it was necessary to rope it off so that the equipment should not be injured.

Cupboards used in the display were the products of the McDougall Co., Frankfort, Ind., which cooperated in the construction of the booth.

General Electric products included were: Hotpoint range, refrigerator, dishwasher, food mixer, radio, and clock. Lighting was also designed by General Electric.

LOS ANGELES SEEGER BRANCH REPORTS INSTALLATIONS

LOS ANGELES—John D. Given, manager of the Los Angeles branch of the Seeger Refrigerator Co., reports the sale of a P-32, an LPA-37, and a No. 5 Ice Maker for installation in the home of Sol Wurtzel, a director for the Fox studios.

The firm also reports another recent sale of unusual size, that of an APA-68; a P-68, AP-14, and A-5 Ice Maker for installation in a home in Montecito, Calif. Sale of this order was made by McRostie Bros., Santa Barbara, Frigidaire dealer.

REQUESTS FOR INFORMATION

Please refer to the 1932 Refrigeration Directory and Market Data Book for a complete list of all manufacturers of refrigeration equipment, parts, materials, supplies and accessories; also for all available statistical data on sales of refrigeration equipment, distribution methods, etc.

To obtain a copy of this book send $2.00 to Business News Pub. Co., 550 Maccabees Bldg., Detroit, Mich.

Advertisers will be given preference in published answers to requests for buyer's guide service, but a complete list of all known suppliers will be mailed if stamped, self-addressed envelope is enclosed with inquiry.

Readers who can be of assistance in furnishing correct answers to inquiries, or who can supply additional information, are invited to address Electric Refrigeration News, mentioning query number.

Statistics on Sales

Query No. 747—"I am wondering if you know the total amount of refrigerators sold in the United States last year, and if you have a list of the first eight or 10 for the amount of sales during 1931."

Answer—All available electric refrigeration sales statistics in the 1932 Refrigeration Directory and Market Data Book. Individual companies, however, keep their sales figures confidential, and only total figures are published.

Refrigeration Industry

Query No. 748—"Will you please send to me any available information at your disposal of the electrical refrigeration business. I am especially interested in the economic phases: production, distribution, and consumption."

Answer—For facts and figures regarding sales, the 1932 Refrigeration Directory and Market Data Book; for continuous information on activities within the industry, Electric Refrigeration News; for developments of refrigeration and application of refrigeration to the food industries, Refrigerated Food News.

AAA Solution

Query No. 749—"What function does AAA solution, which I understand is used on refrigerator coils, perform; what is it, who makes it?"

"Duchess" Refrigerators

Query No. 750—"What is the name and address of the manufacturers of "Duchess" electric refrigerators and "Duchess" electric washing machines?"

Water Coolers

Query No. 751—"Have you a list of water cooler manufacturers? Would also appreciate a list of any manufacturers using compressors."

Answer—For water cooler manufacturers, see 1932 Refrigeration Directory and Market Data Book, page 382; see the same volume for manufacturers who use compressors.

Sales Figures

Query No. 752—"Have you at hand facts and figures giving reported sales of each individual manufacturer for 1931?"

Answer—Individual manufacturers do not release figures showing the production or sales. We have not the totals for the industry and for the N.E.M.A. group. All available statistics to the end of 1931 are published in the 1932 Refrigeration Directory and Market Data Book.

Lassen Electric Control Switch

Query No. 753—"Please let us have the address of the makers of the Lassen electric control switch. These controls were used on the old type remote control Copelands."

Answer—The Lassen electric control switch was formerly manufactured in the Copeland plant under the direction of Mr. Lassen. Copeland no longer services this particular control, but when one comes into their shops it is replaced by the new control of the Bishop & Babcock Mfg. Co., 4901 Hamilton Ave., N. E., Cleveland.

Corrosion-Retarding Solution

Query No. 754—"We would be glad to know the name of the chemical used in the solution with calcium brine in soda fountains to retard corrosion. Also the quantity or proportion of same to be used with any given quantity of calcium brine, and also the name and address of a reliable concern from which this chemical can be purchased."

Answer—S. B. Heath of the Dow Chemical Co. advises that a ½ per cent of sodium dichromate ($Na_2Cr_4O_7$) based on the weight of anhydrous calcium chloride present in solution may be used to retard corrosion of calcium brine.

Kerosene-Burning Refrigerator

Query No. 755—"Would you please let me know if there is on the market a refrigerator which operates with a lighted candle or small coal-oil lamp? Will you send me the address of the manufacturers or agents of it?"

Answer—Perfection Stove Co., 7609 Platt Ave., Cleveland, manufactures a refrigerator operating with a kerosene burner.

Specifications

Query No. 756—"Can you wire the factory prices f.o.b. on net cubic feet sizes of all refrigerators under 15 ft. manufactured by General Electric, Kelvinator, Frigidaire, Copeland, Norge, Servel, Leonard, Majestic? Would like to have complete lines of all manufacturers with factory prices, etc., by mail."

Query No. 757—"We desire to have a comparison data sheet on various refrigerators being sold in our city, and would appreciate, if possible, your penciling in the blank spaces on attached sheet (giving make, model, shelf space, finish, insulation, ice cubes, net cubic feet, total cubic feet, price, refrigerant, time taken to freeze ice)."

Answer—We are just now making a survey of the specifications of self-contained household electric refrigerators, and plan to publish this complete data in the May 18 issue of Electric Refrigeration News.

Ice Cream Cabinet Freezers

Query No. 758—"Will you please refer this letter to, or give me the address of the firm or firms manufacturing the frozen custard machine?"

Answer—For complete list of manufacturers of this type of equipment, see page 258 of the 1932 Refrigeration Directory and Market Data Book.

Compressor Production

Query No. 759—"We would appreciate it if you could give us for our statistics file the most authoritative estimate possible on the total number of electric refrigerator compressors, both commercial and household, that have been produced over all time up to the end of 1931."

Answer—Please refer to the Analysis of Household Sales, page 40, of the 1932 Refrigeration Directory and Market Data Book.

Temperature Controls

Query No. 760—"We have a member interested in locating an article used in electric refrigeration. We understand it to be a plug at one end with 10 or 12 in. of copper tubing soldered into this plug, and in the other end of the tube a cylinder shaped piece which contains methyl gas. It is used to operate the switch which controls the starting of the motor, the gas expanding under heat, and pushing out one end of the plug, which snaps on the switch."

Answer—See page 220 of the 1932 Refrigeration Directory and Market Data Book for complete list of temperature control manufacturers.

Methyl Chloride

Query No. 761—"Will you kindly advice us where we can buy methyl chloride?"

Answer—Roessler & Hasslacher Chemical Co., Inc., Buffalo Ave. and Chemical Road, Niagara Falls, N. Y., and Matheson Co., East Rutherford, N. J.

Air Conditioning Equipment

Query No. 762—"We are interested in securing complete data on air conditioning equipment either water cooled or mechanically refrigerated. I would appreciate your forwarding my inquiry to any firms manufacturing this type of equipment with the request that they send me catalogs, prices, and discounts."

Answer—Inquiry forwarded to companies manufacturing both types; for complete list see page 342 of the 1932 Refrigeration Directory and Market Data Book.

Valves

Query No. 763—"Would you be kind enough to let us know the names of manufacturers of brass forging valves and check valves suitable for small commercial rotary compressors, and having a trade-mark with the letters 'M. B.'; also manufacturers of bellows suitable for stuffing box of SO_2 compressors?"

Answer—The valves referred to are evidently products of the Mueller Brass Co., 1925 Lapeer Ave., Port Huron, Mich.; for manufacturers of bellows, see page 212 of the 1932 Refrigeration Directory and Market Data Book.

General Electric Patents

Query No. 764—"Could you tell us if the General Electric Co. has a patent on the idea of having the condensing coils exposed on the top of the cabinet around the monitor top? I am wondering why other manufacturers have never used this same idea."

Answer—E. J. Steward of the commercial engineering division, General Electric Co., reports that this arrangement of condenser coils is broadly covered by the General Electric patent No. 1,725,472, dated Aug. 20, 1929.

Beverage Coolers

Query No. 765—"Where can I purchase a refrigerator sufficiently large to keep cold 100 or more bottled drinks, also containing a water cooler? This is desired for restaurant use."

Answer—See page 195 of the 1932 Refrigeration Directory and Market Data Book for manufacturers of beverage coolers.

Soda Fountain Parts

Query No. 766—"A Mexican firm advises they are interested in manufacturing soda fountains, and requests the addresses of leading manufacturers of accessories for soda fountains, such as draft arms, pumps, jars, bowls, etc. I shall appreciate it indeed if you will endeavor to place them in touch with such firms."

Pineapple Refreshment Vendor

Query No. 767—"We are interested in a refrigerator similar to some used in the United States for selling pineapple refreshments, and which packing is shown all covered with ice. This kind of refreshment-place is common in the streets of New York City. We hope you can give us information and prices of same." (Latin American firm).

Water Bottles

Query No. 768—"Please advise us where we can secure flat, quart size, screw top water bottles for refrigerators."

Answer—For water bottles and other refrigerator accessories, see page 341, the 1932 Refrigeration Directory and Market Data Book.

THE CONDENSER

PAYMENT IN ADVANCE is required for advertising in this column. The following rates apply:

POSITIONS WANTED—Fifty words or less, one insertion $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each. ALL OTHER CLASSIFICATIONS—Fifty words or less, one insertion $3.00, additional words six cents each. Three insertions $8.00, additional words sixteen cents each.

REPLIES to advertisements with box numbers should be addressed to the box number in care of Electric Refrigeration News, 550 Maccabees Building, Detroit, Mich.

POSITIONS AVAILABLE

SEE display advertisement in this column.

REFRIGERATION MAN experienced on domestic and commercial engineering for technical and experimental work on low side flooded and dry systems. Box 454.

POSITIONS WANTED

REFRIGERATION expert, 14 years' experience in engineering and development work on domestic and commercial equipment, accessories and production methods. College graduate. References. Available for position as chief or consulting engineer to manufacturer in need of results. Box 437.

REFRIGERATION SALES PRODUCER AVAILABLE. Has unusual refrigeration background in branch and dealer organizations. Has thorough grounding in refrigeration selling and that rare ability to handle outlets harmoniously and productively. Keen sales analyst, excellent producer. Should prove valuable as sales manager for large distributor or branch or district manager for manufacturer. Box 447.

POSITION WANTED—Draftsman in refrigerator cabinets, display cases, and ice cream cabinets. Nine years' experience with leading manufacturers of electrical refrigerators. Box 455.

SERVICE MANAGER—Ten years' practical experience on domestic and commercial refrigeration, desires connection with factory, distributor or dealer as service manager or service representative. Can furnish references. Box 456.

FACTORY FOR SALE

FOR SALE—Oil Burner Factory—owners of oil burner factory, centrally located in United States, wish to retire. Burner on market past six years and well established. Approved by Underwriters. Factory now in operation. Sales, service and factory organization intact. $30,000 will buy. Box 428.

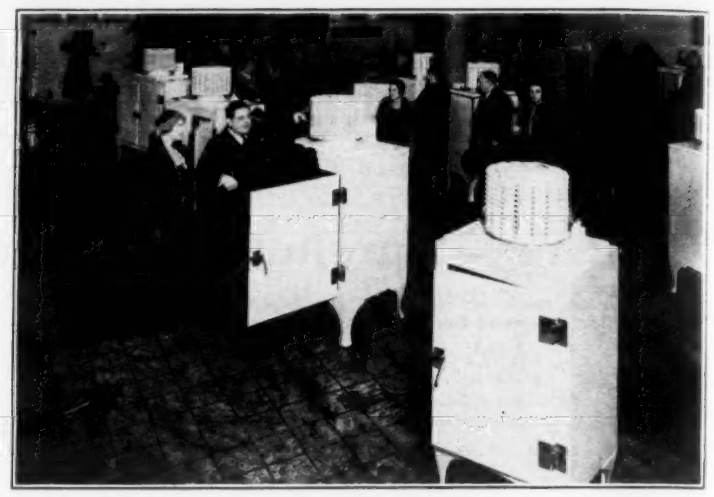
MISCELLANEOUS

THE INDEPENDENT REFRIGERATION CO. of 2689 West Pico St., Los Angeles, Calif., is desirous of receiving offers from manufacturers of room cooling equipment, especially designed for tropical and subtropical climates, also catalogues and price lists on other general refrigeration equipment in use in various commercial fields.

Spring Activities in General Electric Circles

Practical cooks are the Hotpoint range salesmen of the Columbus (Ohio) Railway Power & Light Co., shown here with loaves of bread and cans of vegetables prepared during a cooking school.

Passersby stop long enough to read of the General Electric four-year service plan on a poster in the Cushman Refrigeration Co. window, Cleveland.

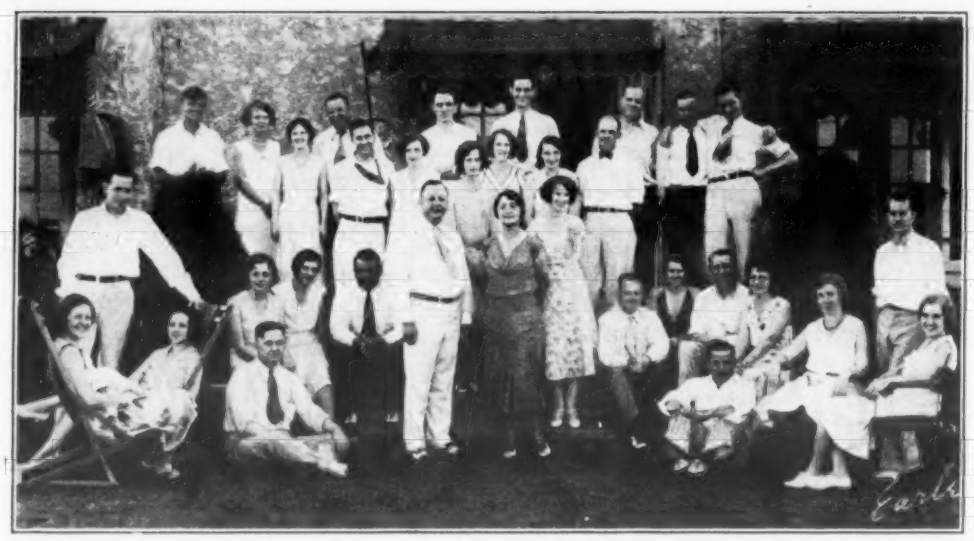


This picture, taken at 12:15 A. M. in the showroom of Frank W. Wolf, Inc., Buffalo distributor, shows the group which lingered to hear about refrigerators after a card party held in the Wolf Institute.

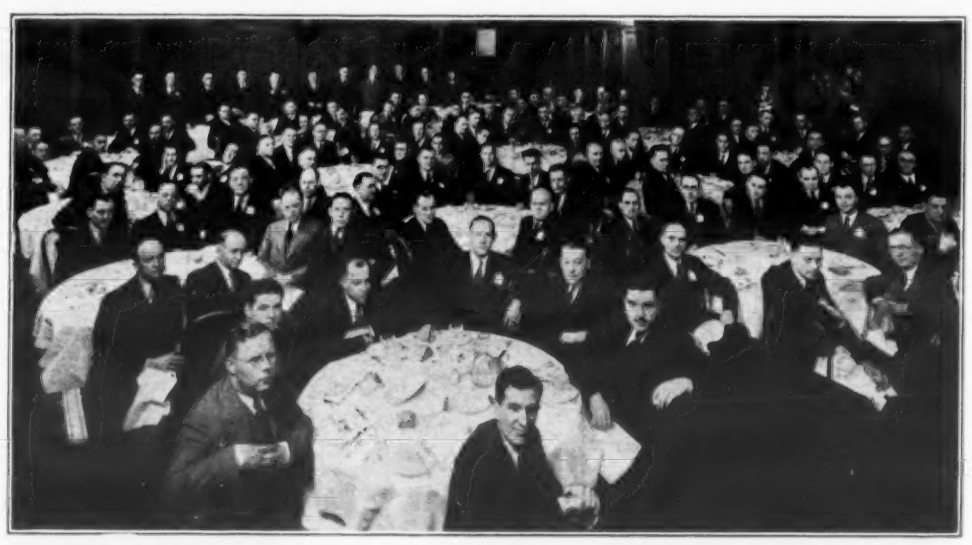
Miss Ruth Hawkins, shown in the offices of the Utah Power & Light Co., was recently chosen Queen of Classicalia in Ogden, Utah.

Six clerks attempt a classification of Grace Ellis' mail, which floods in after broadcasts of the G. E. Circle program, asking for recipes, mystery story contest information, or just commending the program itself.

The attractive woman appears pleased with the aspect of the L. H. Bennett Co., Inc., new showroom in San Francisco.



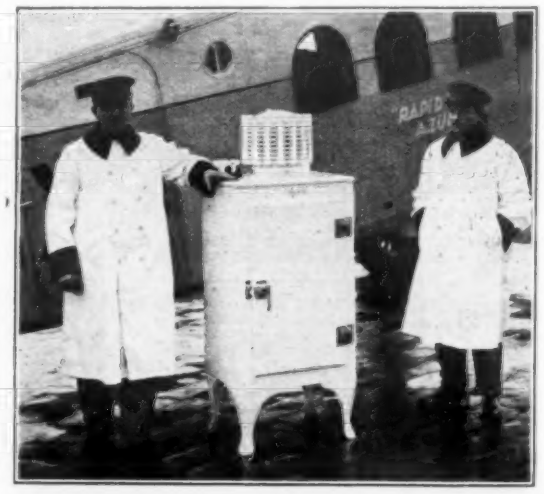
Five years ago George Patterson, Inc., Florida distributor for General Electric refrigerators, employed only a dozen people. Here is the group which he now employs at St. Petersburg.



Dealer and utility representatives who attended the annual spring convention of the Frank Edwards Co., distributor in Salt Lake City, Utah, for General Electric refrigerators.

Mme. Fallieres, home economist of Frigeco, distributor in France for General Electric refrigerators, dictates a few letters to her secretary in her Paris office.

The army which Philip H. Harrison & Co. has thrown into the field on the Eastern front (New Jersey) stops hostilities long enough to be photographed. Seated at extreme right, Lt. Gen. Phil Harrison, General Electric distributor



When the International Fair was opened at Lyons, France, the General Electric dealer wired Paris for an S-44. Frigeco officials rushed the unit by airplane.

WRITTEN TO BE READ ON ARRIVAL

Engineering Section

IN TWO PARTS PART TWO

ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office

The business newspaper of the refrigeration industry

VOL. 6, NO. 35, SERIAL NO. 163

DETROIT, MICHIGAN, MAY 4, 1932

Entered as second-class matter Aug. 1, 1927, at Detroit, Mich.

THREE DOLLARS PER YEAR

DRY-ZERO BOOSTS PLANT CAPACITY MORE THAN 45%

New Production Lines Are Installed by A. L. Clements

CHICAGO—Dry-Zero Corp. has increased the production capacity of its plant here more than 45 per cent to meet the increased demand the present season has brought for its pliable slab insulation.

The increase in production capacity of the Dry-Zero plant has been accomplished by the installation of five new main production lines to replace the four used last year.

In addition to the five new lines there are two special production lines for turning out insulation slabs of unusual shapes.

"Each of the regular production lines installed this year is approximately 30 per cent more efficient than those used in 1931," Mr. Lindsay states. "This is the result of improvements worked out by A. L. Clements, company superintendent."

Each of this year's production lines is 50 ft. shorter than last year's, and the number of operators per line has been reduced from 35 to 30½. The half represents a single operator performing one particular operation for two production lines.

The speeding up of production per operator has also resulted in lower manufacturing costs, according to Mr. Lindsay.

The increase in production capacity has made necessary a corresponding increase in shipping facilities. A new warehouse has been built with two sidings and arrangements for loading 10 freight cars at once. Loading of the cars has been simplified by the development of a conveyor system that makes possible loading direct from production lines, or from the warehouse, or both at the same time.

This is the seventh consecutive year, according to Mr. Lindsay, in which expansion of the Dry-Zero plant has been made necessary by increased sales.

In 1925 the entire plant occupied only 6,000 odd sq. ft. of floor space. In 1927 this was doubled, and by 1929 the plant's area had increased nearly 100 per cent more. Today, the floor space occupied is twice that used in 1930, while actual production of Dry-Zero has increased three times in the last two years.

DAYTON FIRM MARKETING PLYMOUTH REFRIGERATORS

DAYTON—The Merchandisers, Inc., with Sidney Brown as president, has been organized to promote the national sale of Plymouth electric refrigerators, it has been announced. The Ohio distributing organization is known as the Plymouth Products Co., with offices also in Dayton.

The three models in the Plymouth line, available in porcelain or lacquer, are assembled by the Republic Tool Co., Dayton toy manufacturer. Mr. Brown is in charge of production.

The mechanical unit is a product of the Auto Compressor Co., Wilmington, Ohio, and is of the single cylinder reciprocating type. A Mullins evapora-

(Concluded on Page 2, Column 4)

ALCO VALVE NAMES BOVARD SOUTHERN AGENT

DALLAS, Tex.—The Alco Valve Co. of St. Louis announces the appointment of Adair C. Bovard, 610 North Glasgow Drive, Dallas, as its representative in the South.

Mr. Bovard also represents the Hill Mfg. Co. and Henry Valve Co. His territory will cover Oklahoma, Texas, Louisiana, and southern Mississippi, according to the announcement.

A new territory has also been opened up by the Alco Valve Co. in the Intermountain district, with M. B. Urquhart, head of the firm Urquhart Service, Denver, as representative.

The territory covered by Urquhart Service includes Montana, Idaho, Wyoming, Utah, Colorado, and New Mexico.

Cragoe's Proposal To Be Weighed By Committee

NEW YORK CITY—Harry Edwards, vice chairman of the Refrigeration Code Committee of the American Standards Association, has named a subcommittee to consider the plan to rate refrigerants by the safety limits of their concentrations proposed by C. S. Cragoe of the U. S. Bureau of Standards at the March meeting of the code committee.

F. R. Fetherston, secretary of the Compressed Gas Manufacturers Association, was appointed chairman of the new subcommittee, with the following committee members: G. F. Stevens of the Bureau of Standards (with Mr. Cragoe as his alternate); H. E. Newell of the National Fire Prevention Association, New York City; J. B. Churchill, consulting engineer of New York City; Glen Muffly of N.E.M.A.; Harry Edwards, Union Carbon and Carbide Corp.; and George Bright, consulting engineer of Detroit.

As reported in the March 23 issue of ELECTRIC REFRIGERATION NEWS, Mr. Cragoe suggested that a table be worked out for all refrigerants showing the exact concentration in a specific amount of air which would create: 1. a fire and explosion hazard—the lower flammable limit of the refrigerant; 2. a panic hazard—the concentration which will displace sufficient oxygen to be injurious to health; 3. a hazard to health—concentration which would be injurious to a human being after an hour of exposure; a hazard to life—concentration which would be fatal following a long exposure without a warning agent, or following a short exposure with a warning agent.

DENNISON JOINS YORK ON SMALL MACHINES

YORK, Pa.—The York Ice Machinery Corp. has just announced the appointment of French E. Dennison as chief of small machine design.

Mr. Dennison came with the York organization in January to assist in the design and manufacture of the small enclosed compressors.

During the war, Mr. Dennison was employed by the U. S. Government as refrigerating engineer, and was located at the Rock Island Arsenal, Rock Island, Ill.

Prior to his present affiliation, he was employed by General Refrigeration Co. of Beloit, Wis., for a period of 10 years in the capacity of chief engineer.

• • •

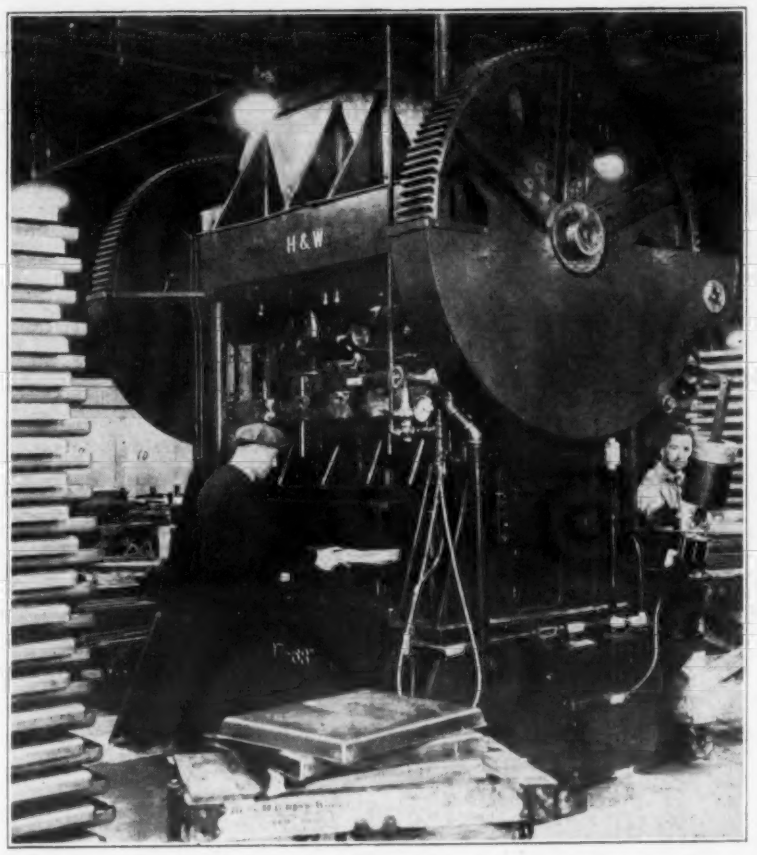
Machine Designer

FRENCH E. DENNISON
Joins York Ice Machinery Corp. as a designer of small machines.

REFRIGERATION EXPORT FIRM IN NEW QUARTERS

LOS ANGELES—The Independent Refrigeration Co., organized as a distributing and exporting firm by Alfred Epstein and M. I. Blumenthal, has just established headquarters at 2689 West Pico St. here. Mr. Epstein has been associated with Kelvinator for eight years, mostly in southern California. Mr. Blumenthal has also been employed by Kelvinator in various capacities.

Norge Press at Work



Giant press just installed in Norge's cabinet plant, Muskegon, Mich., weighs 68,000 lbs. and produces 320 tons of pressure.

A.S.R.E. Men Invited To August Meeting In Argentina

NEW YORK CITY—Addressing the New York section of the American Society of Refrigerating Engineers on April 20, Juan Emilio Capurro, official representative of the Argentine government, presented a cordial invitation to Americans to attend the Sixth International Congress of Refrigeration, Aug. 27 to Sept. 10 in Buenos Aires, Argentina.

The Argentine Republic, he pointed out, has a population of more than 12,000,000 citizens, and is chiefly an agricultural and stock-raising country. Buenos Aires, the capital, in which the congress is to be held has a population exceeding 2,500,000.

"Argentine products can never be absorbed, either totally, or even in great part, by the internal consumption, so that it has a fundamental interest in seeking out methods for the conservation of its products, to transport them and deliver them in perfect condition for disposal in the markets of the world.

"Argentina was one of the first nations to utilize artificial cold for the transportation of its products for long distances and practically all its exportation of meat, fruit, butter and eggs—among the largest in the world—is handled with the use of refrigeration.

"The volume of our exportation of refrigerated goods in 1930 amounted to over $100,000,000, so that it is easy to infer the great interest which the Ar-

(Concluded on Page 2, Column 3)

SAFETY REFRIGERATION CO. GETS FREIGHT CAR ORDERS

CHICAGO—Safety Refrigeration, Inc., last week closed contracts with the Great Northern Railway Co. and the Missouri-Kansas-Texas lines to provide Safety refrigeration equipment and protective devices on refrigerated freight cars of these lines.

With these two additional lines, Safety refrigeration is available to shippers on more than 75,000 miles of railroad in this country, according to Horace M. Wigney, vice president and general manager of the company.

The Silica-Gel refrigerated cars of the company are still in active service, Mr. Wigney points out, but the newest cars will be equipped with compression refrigeration powered by Diesel engines.

Another feature will be side wall evaporators which will run the full length of the car, as well as across each end. The evaporators will be of the finned type, and will be protected so that no part of the load can touch the evaporator, he states.

SERVEL PATENT SUIT DISMISSED BY COURT

NEW HAVEN, Conn.—Judge Edwin S. Thomas of the United States District Court has dismissed the patent infringement action brought by Servel, Inc., against Leo Setlow of the Ideal Plumbing & Heating Co., local Norge distributor, here.

The subject of the suit, U. S. Patent No. 1,520,936 issued to J. H. Dennedy on Dec. 30, 1924, involves a low pressure control.

The case, trial of which two years ago lasted about three weeks, was regarded as a test upon the result of which widespread patent infringement action might have been taken by Servel.

Judge Thomas, in the decision which has been awaited for two years, ruled that the refrigerator in question was "a mere aggregation of old elements and hence unpatentable," and that therefore there had been no patent infringement.

Filing of the suit by legal representatives of Servel, Inc., followed the purchase by an attorney of a Norge refrigerator from the Ideal Plumbing & Heating Co.'s showrooms. The Central Hanover Bank & Trust Co. and Frederick J. Fuller, trustees and owners of the patent in question, also were mentioned as plaintiffs.

May 18 Issue of News To Give Specifications

In response to a pressing demand for specifications of electric refrigerators, ELECTRIC REFRIGERATION NEWS is preparing a special feature to appear May 18 which will present specifications of all popular household electric refrigerators of the self-contained type.

Manufacturers are requested to cooperate by filling out promptly and completely the questionnaires which were mailed to them over a week ago, so that the NEWS can perform this much-needed service for the industry.

CANADIAN BLOWER TO MAKE CARRIER EQUIPMENT

KITCHENER, Ont.—The Canadian Blower & Forge Co. of this city has completed arrangements to manufacture air conditioning equipment under Carrier patents and designs for use in the Dominion of Canada, according to announcement by Carrier Engineering Corp.

3 REFRIGERATORS ARE INTRODUCED BY BAUER BROS.

Manufacturer of Food Machinery Enters Refrigeration

SPRINGFIELD, Ohio—Bauer Bros. Co., local manufacturer of machinery for use in cottonseed mills, cereal plants, feed plants, and for treating coffee and peanuts, has just announced three electric refrigerators.

Officers of the company are Charles L. Bauer, president and general manager; William A. Bauer, vice president; P. J. Shouvlin, treasurer; and W. E. Copenhaven, secretary. These men, together with George Cugley and W. C. Horr, comprise the board of directors.

The new refrigerators are offered in 4-, 5-, and 6-cu. ft. capacities, according to Charles L. Bauer.

Cabinet exteriors are finished in white lacquer, with porcelain food compartments. Flat wire shelves are used, as is chromium plated bronze hardware. The insulation is sealed with Hydrolene, Mr. Bauer states.

Compressors are furnished by the Brunner Mfg. Co., and are driven by 1/6-hp. Robbins & Myers repulsion motors mounted on rubber. One pound of Artic methyl chloride comprises the refrigerant charge.

The condenser is of the continuous finned tubing type, and is mounted directly on the copper liquid receiver.

American Radiator expansion valves, 8-point Ranco controls, and McCord finned evaporators are standard equipment, according to the announcement.

Model 40 has a food storage capacity of 4.15 cu. ft., and 7.8 sq. ft. of shelf area (Nema rating), and makes 56 ice cubes in two trays. It stands 51 in. high, 24 in. wide, and 22 in. deep. Two inches of Balsam Wool fibre insulate the cabinet.

Model 50 has a food storage capacity of 5.07 cu. ft., 10.53 sq. ft. of shelf area by Nema standards, and manufactures 84 ice cubes in three trays. It is 57½ in. high, 28½ in. wide, and 23 in. deep. It employs three inches of Balsam Wool fibre insulation.

Model 60 is rated with 6.07 cu. ft. of capacity by Nema ratings, with 11.8 sq. ft. of shelf area. A total of 112 ice cubes can be made in its four trays. Its height is 62½ in., width 28½ in., and depth 23 in. This model has four inches of Balsam Wool fibre insulation.

PURCHASING AGENTS HEAR THOMAS OF KELVINATOR

DETROIT—Purchasing agents of Detroit heard the Kelvinator slant on "Iceless Refrigeration" recently when C. C. Thomas of the Kelvinator engineering department spoke before the Purchasing Agents Association dinner meeting.

Following Mr. Thomas' talk, which sketched refrigeration development and history, F. A. Vivian of the Kelvinator standards department showed the Kelvinator factory talking picture which has been used at sales conventions this year. Kelvinator literature was later distributed. Purchasing Agent B. P. Watkins and his assistant, F. W. Warner, were present at the meeting.

The Purchasing Agents Association of Detroit toured the Kelvinator plant April 18. The national convention will be held in Detroit, June 6 to 9.

CENTURY ANNOUNCES LINE OF CAPACITOR MOTORS

(See Picture on Page 2)

ST. LOUIS—Century Electric Co. has just added capacitor motors to its line of refrigeration motors, according to an announcement of last week.

Sizes from 1-6 hp. to 10 hp. are included in the new capacitor motors. Capacitors for the small sizes may be mounted on top of the motor, or can be furnished for wall mounting as in the larger sizes.

The new motors are furnished for single or multi-speed operation with normal torque, high torque, or low torque characteristics, the announcement states, to meet requirements ranging from fans to heavy-torque duty such as refrigerators and oil burners.

ADDENDA IS REVISED BY A.S.S.E. COMMITTEE

WASHINGTON, D. C.—Motions were passed to approve three recommendations on installations of certain types of refrigeration equipment to the revised addenda for the A.S.S.E. code by the committee on cross-connections of the American Society of Sanitary Engineers in a meeting here, April 18.

These recommendations will be presented for final consideration to the A.S.S.E. convention at Rochester this summer (dates not announced as yet).

The first of the committee reports dealt with the use of condenser water in refrigerated water coolers, the second with water in soda fountains, while the last established certain requirements regarding the use of water in air conditioning equipment.

Members of the A.S.S.E. committee on cross-connections are: W. R. Hainsworth, Electrolux, Inc., New York City; Glenn Muffly, National Electrical Manufacturers Association, New York City; Louis S. Morse, York Ice Machinery Corp., York, Pa.; E. S. Carroll, General Refrigeration Co., Beloit, Wis.; Fremont Wilson, consulting engineer of New York City; Howard E. Pruitt, Washington, D. C.; Arthur Geiger, War Department, Washington, D. C.; V. F. Hetzel, Frigidaire Corp., Dayton; H. S. Nachman, Washington Gas & Light Co., Washington, D. C., and D. D. Wallace, Faraday Refrigerator Corp., Dayton.

Water Cooling Committee

Committee No. 4, including A. R. McGonegal, chairman; A. R. Geiger; W. B. Hainsworth (with reservation); V. E. Hetzel; Howard E. Pruitt, and Fremont Wilson, made the following recommendations:

"The committee feels that no objection should be raised in regard to entubed (double concentric tubes) precooling in refrigerating apparatus if corrosion-resisting drawn tubing is used and is continuous throughout the entubed portion.

"Insofar as refrigerated water is used for drinking, the committee feels that the recommendations of the American Public Health Association as to drinking fountain requirements shall be adhered to.

"Specifically: Potable water wasted after use as a cooling medium for refrigerant in refrigerating apparatus shall not be directly connected into any waste, soil or sewer of a plumbing system, or any system carrying a nonpotable water, but may be discharged an appreciable distance above the highest possible liquid level of any suitable receptacle for such waste, or the purity of the supply may be protected by an efficient vacuum-breaking or air-supplying device so located as to be above any possible back-up of waste or sewage caused by stoppage in a plumbing system.

Committee No. 8 on soda fountain sinks, cans and dish receptacles, bar sinks, dish washing sinks and machines, silver and pantry sinks, dish and tumbler sterilizers, and similar fixtures for cleaning and sterilizing china, glassware, cutlery and utensils used in food and drink service, either public, institutional, or domestic; and sinks or stock or steam kettles, food boilers, steam tables, and kitchen or pantry apparatus used in the preparation or serving of food recommended:

Soda Fountain Committee

Unless such fixtures or appliances specified in this category, or fixtures or appliances for similar purposes, are water supplied through faucet nozzles set to discharge into them at least one inch above the maximum possible liquid level in the receptacle when waste is stopped off, and potable water supply connection shall be first passed through a suitable vacuum-breaking or air-relief device located, together with the supply line thereto, at least six inches above the said highest possible liquid level.

Committee No. 8 is comprised of A. R. McGonegal, chairman; Robert Falconer; A. R. Geiger; H. E. Pruitt; Fremont Wilson, and V. A. Hetzel.

Committee No. 9 on air conditioning apparatus, headed by A. R. McGonegal, chairman, and including W. R. Hainsworth; A. R. Geiger; V. A. Hetzel; H. E. Pruitt, and Fremont Wilson, proposed:

Potable water shall not be used in air conditioning apparatus unless the water supply thereto shall be located and provided with a suitable vacuum-breaking or air-relief device at least six inches above the top of any chamber or part in which water may be contained, sprayed or circulated; and also that there shall be no direct connection to any waste, soil or sewer of a plumbing system, but waste shall discharge over and an appreciable distance above a suitable receptacle.

R. H. TAIT OPENS AGENCY IN ILLINOIS

SPRINGFIELD, Ill.—R. H. Tait and Sons, Inc., a Missouri corporation, has been granted a charter to do a refrigeration business in Springfield, Ill. Its location is at 212 W. Miller St. W. H. Forthman is the Illinois agent.

ENGINEERS INVITED TO AUGUST MEETING

(Concluded from Page 1, Column 3)

gentine Republic has in the results of this congress, and the intense desire to unite in this immense assembly all representative scientists, technical men, and manufacturers of every nation who signed in the convention of Paris and who are dedicated to the important science of refrigeration.

"America, for many diverse and logical reasons, is highly advanced, not alone on the scientific side but in the technical and industrial units of science and it is with real satisfaction that I am able to assure you that the great advances that you have made have already been applied with positive results in the great Argentine and American packing houses, as well as in the private industries established all over the Argentine Republic," Mr. Capurro said.

"The simple presentment to you of a few commercial statistics will show how your scientific achievements have been translated into industrial trade, by the exportation to my country of refrigerating unit, the figures of which follow:

In 1929 you exported from the United States	$550,000.00
In 1930	440,000.00
And in the year 1931, in spite of the commercial depression	380,000.00

Market for Refrigeration

"Although the use of refrigeration in Argentina is already widespread and of vast importance, I can assure you that in the near future there will be an immense upward movement in these commodities, because there is still a widespread lack of refrigerating plants and other elements of refrigeration for the conservation of our products.

"Another line of activity for exploitation is the installation of refrigeration in butcher shops, dairies, restaurants, hotels, sanitaria, hospitals, etc., as well as the installation of ice water in the principal public buildings and private homes.

"The fishing industry is practically without refrigerating installation of any kind, although the Argentine Republic catches in its fresh waters some 8,000,000 kilos of fish and in its salt waters, some 28,000,000 kilos annually. These great quantities of splendid food cannot reach a sufficiently wide market on account of the lack of refrigeration facilities, both as regards transport and warehouse installation.

Need Fruit Preservation

"In regard to our fruits, we must admit that we have no special refrigerating plants for the conservation of these delicate products, since the few plants which receive these products in our capital have no adequate equipment for their proper conservation.

"Another point of great interest for the Argentine Republic is air conditioning in public buildings. They have already commenced its use in the principal theatres, moving picture houses, and hotels, and I have no doubt that all new buildings will adopt this notable addition to comfort made possible by modern technic.

"The use of refrigerator cars is extremely limited in my country and thus reduces almost entirely the possibility of transport by railway. The refrigerating cars which are so widely used in this country are used but rarely, and on our railroad systems the development is so limited that in the entire Argentine Republic we have less than 300 refrigerating cars. This is most regretable, especially when taking into consideration that our railways extend some 50,000 kilometers.

Interested in American Methods

"My desire is to mention to you, only in the briefest way, the most important and tremendous of the opportunities which the Argentine Republic offers in the world of refrigeration, as I am entirely convinced that the scientists, technicians and manufacturers of this great country will offer splendid cooperation toward the solution of this most important problem which will have, as its logical sequence, a tremendous increase of exportation through the use of your methods of refrigeration.

"The exhibition of machinery in the International Exhibition of Refrigeration will show the efficiency which this science has attained and the brilliant progress of American industry in this respect.

With this in mind, the Sociedad Rural Argentina has available 6,000 sq. meters for this purpose, and the national executive committee has proposed that the permanent commission of the exposition award the exhibitors the following prizes: grand prize, diploma of honor, gold medal, silver medal, and honorable mention.

The Argentine government will contribute its support through their Department of Agriculture and other national sources, with a presentation of scientific works which the Argentine specialists will submit to the congress. His Excellency, the President of Argentina, General Agustin P. Justo, has expressed his desire to give a special audience to the delegates in order that he may welcome them.

Crosley Service School

First Crosley service school graduates. Instructors included Morris Benson (top row furthest left), and Earl Schlofman (center row right).

Crosley Men Finish First Service School

CINCINNATI—The first class in the Crosley electric refrigerator servicemen's school recently inaugurated at the Crosley plant here has "graduated," according to announcement by Edward L. Gross, Earl C. Schlafman, and Morris L. Benson, who serve as instructors.

Servicemen of Crosley distributors throughout the United States and Canada are given an intensive course of instruction covering all mechanical details of the new Crosley refrigerator.

Included in the first group were: Louis J. Bonn, Borglin Distributing Co., St. Paul; V. F. Kibler, Burns Radio Co., Dayton; Marshall Windsor, Tenk Hardware Co., Quincy, Ill.; George Talmage and I. Z. McClean, Boren Bicycle Co., Little Rock, Ark.

Paul Tilson, State Radio Co., Indianapolis; Jack Phillips, Lewis Radio Co., Philadelphia; Jack Sturgis, Electric Lamp & Supply Co., St. Louis; Lawrence Perry, Tenk Hardware Co., Quincy, Ill.; Lester Korfhage, Borglin Distributing Co., St. Paul.

Stuart Lamson, Borglin Distributing Co., St. Paul; A. V. Riggs, Radio Corp., Wichita, Kan.; Harry Epstein, Apollo Radio, Inc., Newark; Winthrop R. Martin, George Collins Co., Boston; Kenneth Beatty, Central Auto Equipment Co., Springfield, Mo.

Warren Turner, Central Auto Equipment Co., Springfield, Mo.; George F. Henry, Radio Corp., Wichita, Kan.; Grant Peterson, Hardware Products Co., Sterling, Ill.; and Thomas Miller, the Bond Rider Jackson Co., Charleston, W. Va.

New Century Motor

Century Electric Co. of St. Louis has just announced a line of capacitor motors for refrigeration. See story on page 1.

DAYTON FIRM MARKETING PLYMOUTH REFRIGERATORS

(Concluded from Page 1, Column 1)

tor is used in all models. Cabinets are made in St. Louis and Chicago, according to Mr. Brown. Dry-Zero is used for insulation.

Specifications for the DeLuxe models (porcelain inside and out) are as follows: The Standish has a gross capacity of 8 1-10 cu. ft., and shelf area of 12½ sq. ft. Height is 58⅝ in., width 32⅜ in., depth 27⅝ in. This model has a capacity of 84 ice cubes.

The Winthrop model has a gross capacity of 6½ cu. ft. and shelf area of 10½ sq. ft. Height in this model is 59½ in., width 28⅝ in., depth 26⅛ in., and ice cube capacity 56.

The Alden model has a gross capacity of 4¾ cu. ft., and shelf area of 6¾ sq. ft. Height is 54 in., width 24⅛ in., depth 26⅛ in., and ice cube capacity 56.

Models with the same specifications except that the exterior finish is of lacquer may also be obtained.

PORCELAIN INSTITUTE TO CONVENE, MAY 26

CLEVELAND—New and old uses of porcelain enamel will be discussed at the second annual meeting of the Porcelain Enamel Institute to be held at the Hotel Cleveland, May 26. Announcement of the meeting has been sent out by George P. McKnight, director of publicity for the Institute.

The meeting, which will occupy the entire day, will begin by the report of the president, R. A. Weaver, of Ferro Enamel Corp. Mr. McKnight will speak on "What the Institute Is Doing to Further the Use of Porcelain Enamel."

Bennett Chapple of the American Rolling Mill Co. will speak on "The Use of Porcelain Enamel in the Home," looking to the first place where the product was used in an important sense.

The use of color to make porcelain enamel valuable as a decoration will be discussed by R. G. Cowan of Ferro Enamel Corp. The permanence of the finish and color will be stressed by Mr. Cowan.

Charles Bacon Rowley, architect who designed the first porcelain enamel residence, will discuss the use of porcelain enamel for exterior building purposes, giving observations drawn from the building of this particular home.

During the afternoon session, William Hogenson of the Chicago Vitreous Enamel Product Co. will talk on "The Use of Friezes in Modern Architecture," as an opportunity for further development of design in porcelain enamel. Another subject relating to architecture will be that of W. Russell Greer, of the Porcelain Enamel and Mfg. Co., who will speak on "Spandrels and Mullions of Porcelain Enamel for Architecture."

Mr. Hogenson, who is treasurer of the institute will report, following which Rudolf W. Staud, of the Benjamin Electric Mfg. Co., secretary, will give his annual report. Election of the Board of Trustees for the coming year will conclude the meeting.

Immediately following adjournment of the general meeting, the new Board of Trustees will be held to elect the executive committee and officers for the year.

FIRST AIR CONDITIONED C&O TRAIN MAKES INITIAL RUN

WASHINGTON, D. C.—The George Washington, first completely air conditioned train to be put in service by the Chesapeake & Ohio Railroad, took its first trip from Washington to Chicago, April 24. It is not an extra fare train.

The train was on exhibition for two days previously in the Union Station here, with guides on hand to explain the air conditioning system.

The train is furnished throughout in a Colonial fashion, with Colonial prints on the walls of the club and dining cars. Cars are named after persons or places famous during Revolutionary days.

The theme was chosen by the railroad because George Washington himself surveyed for a wagon highway much of the route followed by the company's main line, and because he was a stockholder in a company which preceded this one.

The George Washington leaves Washington, D. C., at 6:01 p. m. each evening and arrives in Chicago at 3 p. m., and St. Louis at 4:15 p. m. On its return trip it leaves Chicago at 10:05 a. m., arriving at Washington at 8:30 a. m. Connections are also made to New York and on another branch to Louisville, Ky.

BAER ADDRESSES A.S.R.E. IN LOS ANGELES

LOS ANGELES—Alvin H. Baer, past president of the American Society of Refrigerating Engineers, was the guest at a meeting of the Los Angeles section of the society at the Engineers Club here last week.

Several Refrigeration Men Added To A. S. A. Code Committee

NEW YORK CITY—Several men representing the refrigeration industry have been added to the B-9 sectional committee on safety codes for mechanical refrigeration of the American Standards Association, according to an announcement of April 12.

F. E. Matthews of Leonia, N. J., remains as chairman, with H. D. Edwards of the Linde Air Products Co., as vice chairman, and D. L. Fiske, secretary of the American Society of Refrigerating Engineers, as acting secretary.

The complete committee is listed below:

A.S.R.E.

Representing the A.S.R.E. are George Bright, consulting engineer of Detroit; Dr. J. B. Churchill, consulting engineer of New York City; Van Rensselaer H. Greene, New York consulting engineer; Dr. D. R. Harper of the Carnegie Institute of Technology; F. E. Matthews; with George Hulse of the Safety Car Heating & Lighting Co., and A. R. Stevenson, Jr., of General Electric Co. as alternates.

American Chemical Society: F. G. Keyes of the Massachusetts Institute of Technology, with W. H. Hainsworth, Electrolux, Inc., of New York, as an alternate.

Gas Association

American Gas Association: N. T. Sellman of the Consolidated Gas Co., New York City, with A. Rathmacher of the same organization as his alternate.

American Institute of Electrical Engineers: George E. Wells, St. Louis, with E. P. Hill of New York City as his alternate.

American Institute of Refrigeration: Fred Ophuls of Brooklyn.

American Society of Civil Engineers: A. B. Heiser, consulting engineer of Beacon, N. Y., with R. F. Bessey of New York City as his alternate.

A.S.H.V.E.

American Society of Heating and Ventilating Engineers: Lee Nusbaum of the Pennsylvania Engineering Co., Philadelphia, with J. I. Lyle of Carrier Engineering Corp., Newark, N. J., as alternate.

American Society of Mechanical Engineers: B. H. Coffey, consulting engineer of Elizabeth, N. J.; Louis Doelling, U. S. Fire Protection Corp., Hoboken, N. J.; Walter F. Jones of Carrier Engineering Corp., Newark, N. J.; Robert F. Massa of New York City; C. R. Neeson of Baldwin-Southwark Corp., Philadelphia; C. C. Spreen of Detroit; and as alternates—Louis H. Roller, Carrier Engineering Corp., Newark, N. J.; W. B. Rorison, Carrier Engineering Corp., New York City; and A. U. Zimmerman, Lapham-Perkins Engineering Co., New York City.

Warehousemen

American Warehouseman's Association: G. A. Horne of the Merchants' Refrigerating Co., New York City.

Association of Governmental Officials in Industry: M. H. Christopherson of the New York State Insurance Fund; and F. A. Groepler of the Industrial Board of the New York Department of Labor as his alternate.

Bureau of Safe Transportation of Explosives: Guy E. Carleton, Bureau of Explosives, New York City.

Compressed Gas Manufacturers' Association: F. R. Fetherston, secretary of the association.

Ice Group

Eastern Ice Association: A. C. Craig, secretary of the association.

International Acetylene Association: H. D. Edwards, with M. G. Farrar, Carbide and Carbon Chemical Co., New York City, as an alternate.

International Association of Industrial Accident Boards and Commissions: Joseph F. Scott of the Steam Engine & Boiler Operators' License Bureau, Trenton, N. J., with John W. Price and Edward Walker of the same organization as alternates.

Chemists

Manufacturing Chemists' Association of the United States: H. L. Miner, E. I. DuPont de Nemours Co., Wilmington, Del.

National Association of Ice Industries: George Lange, American Ice Co., New York City; with G. S. Couzens, Westchester Service Corp., Yonkers, N. J., as an alternate.

National Association of Practical Refrigerating Engineers: Martin Van der Veer of New Haven, Conn.

National Bureau of Casualty and Safety Underwriters: O. J. Smith, U. S. Casualty Co., New York City, with F. M. Bullen of the same organization as his alternate.

N.E.M.A. Group

National Electric Light Association: C. K. Nichols, New York Edison Co.; with Alexander Maxwell of N.E.L.A. as his alternate.

National Electrical Manufacturers' Association: Glenn Muffly, N.E.M.A. staff; E. B. Newill, Frigidaire Corp., Dayton; M. C. Terry, Westinghouse Electric & Mfg. Co., Springfield, Mass.; E. T. Williams, Servel, Inc., New York City; R. A. McCarty of Westinghouse in East Pittsburgh; John Wyllie, Jr., Kelvinator Corp., Detroit; Ira Reindel, Norge Corp., Detroit; and A. R. Stevenson, General Electric Co.

National Fire Protection Association: H. E. Newell, National Board of Fire Underwriters, New York City.

National Safety Council: J. I. Banash, Chicago consulting engineer.

New York Board of Fire Underwriters: W. B. White, New York Board of Fire Underwriters, with J. L. King, and A. E. Ewen of the same organization as alternate.

New York City Bureau of Fire Prevention: C. K. Michaels of the bureau.

Refrigerating Machinery Association: A. H. Goelz, Carrier Corp., Chicago; A. H. Baer, Frick Co., Waynesboro, Pa.; W. H. Carrier, Carrier Corp., Newark, N. J.; L. Williams, York Ice Machinery Corp., York, Pa.; with R. W. Waterfill, Carrier Corp. and F. R. Zumbro, Frick Co. as alternates.

Underwriters Laboratories

Underwriters Laboratories: S. V. James of the laboratories in Chicago, and C. W. Rulon of the laboratories in New York City as an alternate.

U. S. Bureau of Standards: G. J. Stevens of the bureau, and C. S. Cragoe of the bureau as an alternate.

U. S. Department of Labor: J. F. Dalton, International Association of Machinists, New York City.

Among the committee members are 12 manufacturers' representatives, seven purchasers or owners of refrigerating equipment; two employes; five representatives of governmental bodies having regulatory power of the industry; 14 independent specialists, and four insurance representatives. The committee membership of 44 is supported by 27 alternates, making a total of 71.

A.S.A. CODE CORRECTIONS

Typographical corrections and minor changes receiving unanimous vote in the meeting of Sectional Committee B9 of the American Standards Association on March 18, 1932, for inclusion in the next printing of the American Standard—A.S.R.E. Safety Code for Mechanical Refrigeration.

SECTION III.

Second line of first paragraph insert "in" before "ice."

Paragraph 311. Marginal note should read "Limitations of Commercial Systems."

Paragraph 313 (c). Change the word "and" to read "or."

Paragraph 314 (b). Insert the word "times" after the word "one-half."

Paragraph 321, third line. Change the word "safety" to read "safely."

Paragraph 332 (b). Strike out the words "using a water cooled condenser." This does not change the meaning as the paragraph already specifies "water-cooled" systems.

Paragraph 340. End of second line should read "Table I" instead of "Table 1." Also, the second line of the tabulation should start "1,000 to 1,800 lbs." instead of "1,200 to 1,800 lbs."

Paragraph 364. In the third line change the word "refrigeration" to read "refrigerating."

Paragraph 365. Add the marginal index word "Pipes." Change the second sentence of subparagraph (a) to read "Extra heavy butt welded pipe may be used for test pressures up to 300 lbs."

Paragraph 366. Change the marginal index word "Flanges" to read "Flanged Fittings."

Paragraph 367. The second group of subparagraphs designated by the letters (a) to (d), inclusive, change to read from "(e)" to "(h)." This means that the subparagraphs are numbered from "(a)" to "(h)," inclusive.

Paragraph 374. The marginal index should read "Part Marking" instead of "Part Making."

Paragraph 388 (2), (a), insert a comma after the word "elements."

SECTION IV.

Paragraph 404. Strike out the reference to paragraph "362." Unit system cabinets are not required to be anchored.

SECTION V.

Paragraph 503. Add the marginal index words "Sleeping Room."

Paragraph 504. The marginal index words "Evaporator and Refrigerator Fastening" should appear opposite this paragraph and not opposite paragraph 503.

WAGNER ELECTRIC DESIGNS TWO NEW MOTORS

ST. LOUIS—Two new split-phase motors, the 44-B and the 56-RB, completely redesigned, have been announced by Wagner Electric Corp.

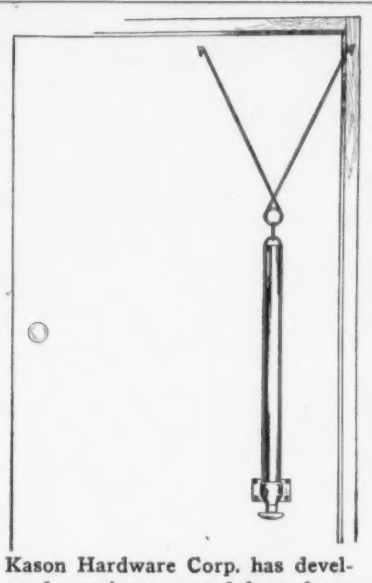
New features of the two motors are dripproof endplates! liberal wool-yarn lubrication; a conduit box adjustable in four positions, and on the 44-B, a redesigned switching mechanism.

The two motors are available in 1-30 to ¼-hp., 1,725 and 1,140 r.p.m., all cycles, according to the announcement.

KASON HARDWARE CO. OFFERS DOOR CLOSER

BROOKLYN—Kason Hardware Corp., manufacturer of Kason refrigerator locks and hinges, announces the development of an automatic door closer for closing heavy commercial doors.

The device consists of an enclosed spring which is mounted on the inside of the door, and which is connected by wire to both the cabinet and the door. Minor adjustments of spring tension are made by loosening or tightening an adjustment screw.



Kason Hardware Corp. has developed a spring operated door closer to be fastened on the inside of commercial refrigerator doors.

English Firm Has New Refrigerator

By Floyd E. Sullivan
U. S. Dept. of Commerce

LONDON, England—Vac-Tric, Ltd., vacuum cleaner manufacturer at Waterloo Road and North Circular Road, Cricklewood, has just introduced an electric refrigerator. It is understood that Vac-Tric has extended its factory to permit manufacture of the new refrigerator.

The inside of the cabinet is vitreous porcelain enameled, while the outside is white cellulose, the sheet steel having previously been treated to prevent rusting.

The fittings are chromium plated. One small and three large shelves are provided, giving a shelf capacity of 9¾ sq. ft. with a volume of five cu. ft. Two in. of slab cork insulation are fitted to the sides, three in. being provided top and bottom.

The bottom of the refrigerator is "dished" to prevent spilt liquid running out and spoiling the appearance of the outside, according to the announcement.

The refrigerating medium used is sulphur dioxide. The compressor is belt-driven from a rubber mounted motor, with a view to reducing noise to a minimum. The motor is thermostatically controlled and a regulator is provided giving five operating temperatures.

The refrigerating coils are immediately underneath the bottom ice tray. A defrosting switch enables the frost to be melted and the water removed. It is understood that the new refrigerator will be sold at a competitive price.

INSTALLING KELVINATORS

WASHINGTON, D. C.—Barber & Ross, Inc., distributor for Kelvinator, will install Kelvinators in "Foxhall," a group of English village homes.

7 MODELS COMPRISE LINE OF FREEZETTES

NEW YORK CITY—Development of the market for their electric refrigerator line, the Freezette, in this country will be made this summer by Sorino & Son of New York City which until recently has sold its product principally in foreign countries, and in foreign districts of this city.

Seven models, ranging in size and price from a 4-cu. ft. model selling at $149, to a 14-cu. ft. model retailing at $465, comprise the Freezette line. Freezette models have all-porcelain interiors and baked enamel exteriors. Hardware is chromium plated. Insulation is of Zilem fibre-sealed slab insulation. The cabinet has front and side baffles. Delco and Leland motors are used.

Some 300 Freezette units are now in active service in foreign countries, Ben M. Sorino, president of the company, estimates. Retail dealerships have been maintained in France, Italy, Belgium, Switzerland, Spain, China, Brazil, Argentina, Haiti, and Algeria.

Dealerships will also be founded in the near future in Portugal, Germany, Norway, South Africa, Palestine, Cuba, Porto Rico, Uruguay, and Manchuria, according to Mr. Sorino.

New York distribution is now being effected through Freezette retail outlets in Brooklyn, Corona, Astoria, and Baldwin, L. I. A force of 22 retail salesmen is in the field, and approximately 2,000 domestic installations have been made in Greater New York City.

Freezette advertising pamphlets are printed in French, Spanish, and Italian for use in the foreign districts of New York City, and the staff of the firm embraces speaking knowledge of German and Yiddish besides.

Production of between 3,000 and 4,000 refrigerators will be reached this year, Mr. Sorino believes.

Railroad Air Conditioners Described; Carrier Steam Ejector Explained

By W. H. Carrier and R. W. Waterfill*
Carrier Engineering Corp.

AIR conditioning is the scientific modification and control of the thermal properties of air. When applied as a regulated means of dissipating body waste heat and controlling skin temperature it becomes conditioning for human comfort.

Man's first attempt at air conditioning was heating alone. This marked a step in his own progress and development. The earlier methods of heating were gradually improved and simplified through the centuries. Ultimately, by central heating, a reasonably comfortable and uniform temperature was attained in the surrounding air, as contrasted with a single concentrated radiant heat source, subjecting the body to cold and hot zones of air.

Only comparatively recently has complete scientific control of temperature, humidity, air movement, etc., been established on a wide commercial scale. Still more recently has it become a health and comfort servant of the general public. The earliest theatre completely air conditioned on sound principles appeared in 1922.

The appreciation of the value of air conditioning for comfort in railroad passenger cars has increased rapidly in the past two or three years. From the theoretical suggestions of the idea 20 years ago by a few individual dreamers, it developed into a purposeful study by 1924; and an actual successful application in 1929, following a preliminary demonstration in 1928.

Gives Advantage Over Competition

Furthermore, it gave them an added advantage over smaller vehicles, in gaining the favor of the traveling public. Their present advantage is the time required to evolve means for similar results on smaller conveyances. At present the advantage is great.

The pioneering roads, first to appreciate the commercial value of air conditioning, and to cooperate in its application by modifying the necessary details of their car construction and placing systems in effective service, are the Baltimore and Ohio, the Sante Fe and the Missouri, Kansas, and Texas. The methods and equipment were very similar in all of these original demonstrations of air conditioning value in travel.

*Talk given by W. H. Carrier at the conference on air conditioning of the Case School of Applied Science, Cleveland.

The first successfully and completely air conditioned passenger car in regular service was the diner, "Martha Washington," of the B. & O. railroad. The air distribution is overhead throughout the length of this dining car.

A Sante Fe diner was the second such application. Due to the great temperature extremes through which this road passes in the southwest, the value of summer conditioning was demonstrated in sharp relief. The first installations, while highly successful, were necessarily in a large measure adaptations of mechanical equipment available.

Conditioning Moving Vehicles

There are many problems in conditioning the air of a moving train which differ greatly from theatres, etc. These should be analyzed and taken into account in determining the characteristics of any proposed method of solution. They are:

1. A continually changing geography, requiring a great flexibility of equipment to meet its needs.
2. A moving car cannot obtain power and water by simple connection to some large stationary source, except on a few electrified lines where this form of power is available.
3. A portable power and water system is an additional transportation burden and cannot be bulky.
4. It should not require additional servicing of a special nature.
5. The passenger car shape and movement necessitates careful distribution of air to attain uniformity and avoid drafts.
6. The present requirements are extreme flexibility, and independence of individual cars.
7. The types of cars to be considered are the diner, day coach, parlor car, pullman sleeper, compartment, drawing room, club, private car, etc. These variations chiefly affect the technique of air distribution.

The air conditioning system consists of a means of cleaning, heating, humidifying, cooling, and dehumidifying the air circulated within the car; a control for selectively applying the proper corrective means; an air distributing and circulating system; a source of heat; and a cooling or refrigerating source, with its auxiliaries, and power.

The capacities of all these elements must be balanced if the whole is to function economically and effectively.

The air cleaning, heating, humidifying, cooling, and dehumidifying elements are relatively simple in themselves. Control devices are likewise well developed. The major problems are air distribution, a means of refrigeration, and suitable and sufficient power. We will consider these in turn.

The circulation and distribution of the air is essentially a unit system for each car. Neither the shape of the car nor train is adaptable to any central station system of distribution. Distribution is one of the delicate steps in satisfactory results, and effective utilization of the work of the other parts of the system.

To avoid drafts, the air velocity through the occupied areas being conditioned should be less than 50 ft. per minute, and the temperature approximately equallized. Sensations of draft are combinations of velocity and temperature difference, increasing discomfort through abnormal cooling rates, frequently with detrimental results.

The temperatures to be maintained inside should be governed by outside temperatures, to avoid severe contrast to allow for seasonal dress, etc. In other words, the greatest comfort to transient occupants of any conditioned space, is provided by tempering the extremes of the seasons.

The following table gives an accepted relation between inside and outside summer conditions. (A. S. H. & V. E. Guide.)

The limiting maximum which can be carried with comfort is 82° d. b. and 65.5° w. b., regardless of how high the outside temperature may rise. Greater comfort is secured if the difference between the outside and inside temperature is not too great.

DESIRABLE INDOOR TEMPERATURES IN SUMMER CORRESPONDING TO OUTDOOR TEMPERATURES

Degrees Outside	Degrees Inside			% Relative
Dry Bulb	Dry Bulb	Wet Bulb	Effective Temp.	Humidity
95	80.0	65.2	73.4	45
90	78.0	64.5	72.2	49
85	76.5	64.0	71.1	52
80	75.0	63.5	70.2	54
75	73.5	63.0	69.3	56
70	72.0	62.5	68.2	59

Six Tons of Refrigeration

To maintain these conditions and provide adequate ventilation in a Pullman car, it has been found that a refrigerating capacity of approximately six tons is required, approximately, as follows:

Heat Source	B.t.u. Per Hr.
Radiation and Convection	18,000
Sunlight	12,000
People	16,000
Ventilation and Dehumidification	23,000
Mechanical Equipment	3,000
Total	72,000

The requirements for adequate ventilation and dehumidification are a large and important part of the refrigeration duty. Less refrigeration would be required to maintain higher relative humidities, but humidities higher than those existing in the above table have been proven to be uncomfortable.

For the higher dry bulbs the relative humidity should not exceed 45%, and in no instance should it greatly exceed 55%.

This comparatively large refrigerating plant has been one of the most difficult phases of the system to solve. Among the problems of this special service are an adaptable source of power, continuously available in satisfactory amount, and a desirable refrigerating system.

A satisfactory refrigerating system must possess a number of special characteristics: namely, safety, small space and light weight, low initial and maintenance cost, ease of control, simplicity so as to require no special operating training, and a minimum of noise.

There are several possible solutions of the power problem, but on account of existing railroad conditions and practices some are decidedly impractical. For the few electrified lines, electric power is perhaps the answer, but the majority of railroads are at present steam driven, and in these the source of power for driving the refrigerating system is not so easy to provide.

In discussing the power problem it is necessary to consider two possible methods of refrigeration, one, the master car method by which the refrigeration for the entire train would be produced in one centralized refrigerating system, and distributed from this to the several cars.

The other may be called the unit system, in which each car has its own refrigerating and air conditioning systems, and separate source of power.

There is also a third system called the head system in which there is a centralized source of power which is distributed to the unit refrigerating and air conditioning systems in the separate cars.

In the master car method, the refrigerating effect is distributed by circulation of cold brine or water, throughout the train. The principal objection to this is the dependence of all cars on the master car. Owing to the shifts in train make-up, a large number of master cars would be required.

The same objection would hold for centralized power distribution except where the power is readily available, as steam on steam operated lines and electricity on electrified lines.

The development of power, in the relatively large quantity required on the individual car, is attended with more or less practical difficulties.

One method that has been used is that of the individual gasoline engine. This method results in a multiplicity of mechanical elements and appears to possess unwarranted hazards to safety. Other difficulties will appear in the survey of examples of practice of railroad refrigeration so far developed.

The first passenger car installation used a self-contained power source. In this instance an ammonia compressor was driven by an electric motor, obtaining energy from a separate axle-driven generator.

A storage battery carried the load when the train stopped, or traveled slower than 20 miles per hour. At higher speeds the battery was recharged. A battery possessing appreciable energy storage, however, is very bulky, weighing as much as the entire air conditioning system.

A modification of this system is the direct drive of the compressor from the car axle when the train is in motion at speeds above 20 miles per hour, by means of a magnetic clutch.

Since the storage battery equipment is objectionable, both as to first cost and size, this is sometimes omitted. The result is an intermittently operating system driven directly from the car axle when the train is in motion, and remaining idle at speeds less than 20 miles per hour.

This does not permit maintenance of uniform temperature conditions unless storage of some kind is used. Since continuous operation requires six tons, the refrigerating capacity of the intermittently operating system must, therefore, be greater.

Assuming that the same conditions are to be maintained with the intermittent system as with the continuous system, and when the storage consists of cold water, it is easy to determine the water storage required, as well as the compressor size.

If the compressor operates for two hours continuously, and storage is drawn upon for 15 minutes at a 6-ton rate, with the usual temperature range of stored water at 35 to 50°, then 1,200 lbs. of water are required. This requires a tank capacity of 20 cu. ft.

In order to handle requirements while operating, and provide this storage in two hours, the compressor must produce refrigeration at a rate of 6¾ tons. Due to the fact that the storage temperature is lower than that required to carry normal duty, the compressor displacement must further be increased about 20 per cent.

Selecting the System

In selecting the refrigerating system, its adaptation to the source of power is of prime importance. The systems which appear to possess immediate possibilities, are the steam ejector, the positive mechanical compression using dichlorodifluoromethane (F-12) centrifugal compression, and ice.

An ammonia compression refrigerating system was first employed, and installations were made on the B. & O., Santa Fe and M. K. T. diners. The ammonia machine was well suited to these pioneer installations, because it was fully developed and simplified in the size required and was, therefore, most available.

An ammonia system provided with electric drive and batteries for continuous service would have a total weight of approximately 10,000 lbs. The electric power required to operate the compressor fan and circulating pumps is about 10 hp.

The difficulties and objections to the use of separate sources of power, and the fact that all steam operated trains have a central source of power in the steam boiler, having an excess capacity for heating in winter, has indicated the use of steam as a logical power medium for summer.

For this reason the latest development has been the steam ejector refrigerating system which can employ steam directly for its operation. Such a combination provides a unit car refrigerating and air conditioning system adapted to an existing central power source.

This power is available as long as the engine is connected to the train regardless of train speed. It is also available at most stations where it has been provided for winter heating so that continuous operation is practicable under most conditions of train handling.

The quantity of steam required to produce the necessary 6 tons of refrigerating capacity, including line losses, is approximately 240 lbs. per hour at 50 lbs. pressure. This is less than the maximum winter heating load of 260 lbs. per hour per car.

The transmission of sufficient steam to all cars through a long train without serious pressure loss requires large 2-in. metallic couplers. At the present time the limit for such transmission and service is about 15 cars.

Like all other compression refrigerating systems, the steam ejector refrigeration cycle uses an evaporator, compressor, condenser and auxiliaries. The form of each of these parts is very simple in the steam machine. The condenser, which is the simplest major element of the customary compression system is by comparison the most complex of this system.

Water is the only refrigerant used, and water vapor (steam) is the power medium. This contributes to safety and eliminates ordinary difficulties of refrigerant loss, and service of mechanical equipment.

The pressures in the system are, therefore, equivalent to the vapor pressures of water at the corresponding operating temperatures. These pressures are below atmospheric in both the cooler and condenser. The absolute pressure in the cooler is approximately 0.30 in. mercury, and that in the condenser approximately 2.0 in. of mercury for normal operation.

A merit of the system is its simplicity. The water, which is circulated through the air cooling coil, is sprayed directly into the evaporator or water cooler. This is a simple evaporating tank containing a small water storage, but requiring no internal tube construction.

The ordinary refrigerating system using water cooled by another refrigerant, must, of course, contain heat transfer surface for separating the mediums. No such surface is required in this system.

The water in circulation is cooled by its own evaporation. The evaporation of 1 lb. of water will cool approximately 200 lbs. of the remaining circulated water through a range of 5° F.

Air-cooled Condenser

The forced draft atmospheric condenser is attached directly to the compressor discharge. The condenser's function is to recondense the water vapor drawn from the evaporator, plus the steam which supplies the energy for compression.

The construction is of brass tubes with external fins, which are thoroughly wetted by flooding with a water spray. The air used for cooling the condenser is drawn through this wetted surface.

The cooling effect is dependent on the wet bulb temperature of the air rather than on its dry bulb temperature. The high rate of heat transfer for water and water vapor with this type surface enables the attainment of very low condenser pressures.

The steam ejector compressor consists of two ejectors. The smaller interior one is the power element, and performs the function of the motor or gas engine used in other systems. The large ejector is the refrigerant (water vapor) compressor.

A refrigerating machine of this type producing 6 tons of refrigerating effect requires approximately 205 lbs. of steam per hour for operation. The line loss for distribution through the train condenses about 35 lbs. per car per hour average.

The only electrical power required is for the fans and pumps. These auxiliary motors require 2.3 b.h.p. for summer operation.

The weight of all equipment for this air conditioning system, exclusive of air distributing ducts, is approximately 3,400 lbs. The combined water capacity to charge the system and for storage is approximately 300 lbs.

The steam used to operate the compressor is condensed and used for "make-up." The actual "make-up" from storage required for a 6-ton refrigerating rate, is from 20 to 45 lbs. of water per hour.

The principal features of this type system are its safety, simplicity and ease of control. Since the compressor requires no lubrication and has no moving parts, and no refrigerant other than water is used, the servicing and maintenance costs of these items are minimized.

The chief disadvantage is that large 2-in. coupling connections are required to distribute the steam through the train without excessive pressure drop. On electrified roads, it may be desirable to use electricity instead of steam as the power means. However, it is possible to use the steam equipment provided for heating during winter for operation of steam refrigerating equipment in summer.

When a larger percentage of the roads have been electrified, and even at the present time where definite cars are designed for use only on electrified lines, motor-driven compression machines will be desirable.

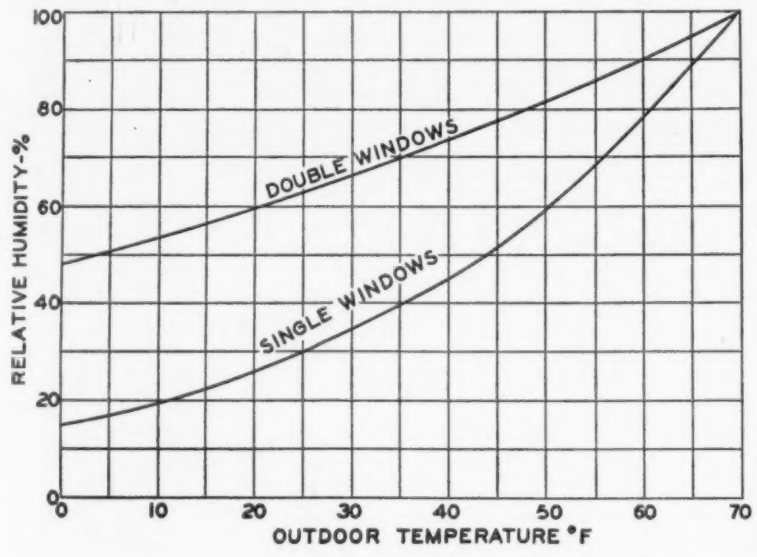
This requires, however, a satisfactory compression machine using a refrigerant which meets safety requirements. Hence compression refrigerating machines similar to the first ammonia machines, but using the new refrigerant F-12, appear to offer the best solution at this time.

Shows Factors Affecting Development Of Domestic Air Conditioning

By W. M. Timmerman
Engineering Division, General Electric Co.

THE rapid development of the domestic refrigeration industry has been somewhat coincident with public education on the necessity of proper refrigeration for the preservation of perishable food products. Likewise, air conditioning is progressing as people become conscious of the desirability of maintaining proper air temperature, humidity and purification in order to enjoy the best health, comfort and efficiency. The rapidly increasing number of articles in newspapers, magazines, and technical journals is evidence of the fact that air conditioning has struck a responsive chord.

The conditions of the air in which we live and which we breathe day in and day out may have a much greater affect on our health and vitality than any of us realize at the present time. Everyone knows from experience that he is neither comfortable nor effective when the temperature is either too high or too low, or when the humidity is either too high or too low.



Some investigators are developing the theory that changes in climatic conditions may have been one of the principal factors in the rise and fall of civilizations in the past. Historians have neglected this factor entirely and it now looks as though they shall have to revise their ideas. Ellsworth Huntington of Yale University is the author of a very interesting book on this subject entitled "Civilization and Climate."

The obvious conclusion from these investigations is that we should so control the atmospheric conditions in which we live so as to enable us to enjoy the maximum of health and vitality. The use of air conditioned homes, offices, and all places where people gather may make it possible for a progressive civilization to develop in large sections of the world which are now entirely unsuited for human inhabitation and progress.

As I have indicated above, by complete air conditioning we mean:

Functions of Air Conditioning

1. Proper heating and humidification in winter.
2. Proper cooling and dehumidification in summer.
3. Air purification the year round.

We have often heard the statement that the air in our heated homes in the winter time is drier than the air in the Sahara desert. This surprising condition is true and we suffer as a result of it.

When outdoor air at a temperature of 30° F. and relative humidity of 70 per cent is heated to a temperature of 70° F., the relative humidity drops to 17 per cent. When outdoor air at a temperature of 20° F. and 70 per cent relative humidity is heated to 70° F., the relative humidity drops to 10 per cent.

This extremely dry air dries the mucous membranes of our nose and throat which seems to make us more susceptible to colds and respiratory diseases in the winter time. Our furniture also suffers from this dry condition, the wood cracking and the glued joints drying and opening up.

Rugs and fabrics lose their moisture and become brittle, making them much more susceptible to wear. Relative humidity indoors in the winter time should be approximately 50 per cent instead of the 5 to 20 per cent which we now have.

To maintain this relative humidity in the average home, it is necessary to add from 8 to 24 gals. of water to the air per day, the exact quantity depending on the size of the house and the type of construction—which in turn determines the amount of infiltration of outdoor air each day. There are a number of simple methods of humidifying our present homes, some of which follow:

1. Furnace pans.
2. Radiator shield pans.
3. Radiator type humidifiers.
4. Water sprays.
5. Small unit humidifiers.

The limitation in humidification of our present residences is determined by the point where condensation begins to appear on the windows, and in some cases even on the walls. For example, with an outdoor temperature of 30° F., single glass windows will begin to sweat when the relative humidity is approximately 35 per cent. With an outdoor temperature of 20° F., condensation takes place at a relative humidity of about 26 per cent.

With an outdoor temperature of 10° F., the maximum humidity that can be obtained indoors is about 20 per cent. From this it is evident that we are definitely limited in the amount of humidification that can be accomplished with single glass windows.

Before we can economically cool our homes in summer, it will be necessary to insulate them. Insulation can also be justified by the savings it will produce in our heating costs. Data taken from U. S. Bureau of Standards Circular No. 376 give the fuel savings which can be realized in the average residence by weather stripping, using double windows, and using ½- and 1-in. thicknesses of insulation.

Summer Treatment

The second function of air conditioning is to cool and dehumidify in the summer time. Investigations conducted by the American Society of Heating and Ventilating Engineers show that the indoor temperature and humidity in summer should vary with the outdoor conditions.

We might divide the methods of cooling residences into two groups; namely, central systems, and systems of individual units. The central system might again be divided into forced air systems in which complete refrigerating equipment is installed in the basement, and air is circulated by forced convection throughout the house and into circulating cold water systems in which water refrigerated in the basement is circulated to individual coolers in the various rooms.

Multiple Air Conditioners

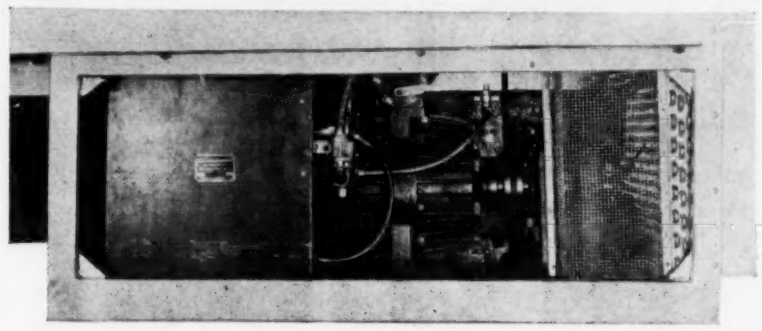
A multiple system would consist of a condensing unit in the basement with refrigerant piped to direct expansion unit coolers in the various rooms. The individual units might be of the self-contained type in which a water-cooled refrigerating machine with a direct expansion cooling coil, or a refrigerated water spray, is housed in one cabinet which is placed directly in the room to be conditioned.

With a remote arrangement the condensing unit would be located in some room other than the one to be conditioned, and either refrigerant or cold water piped to the unit cooler.

The operating costs for cooling and dehumidifying residences will, of course, vary with the climatic condition. A number of very interesting papers has been presented during the past year on the possibility of using refrigerating machines for both heating and cooling.

It is not economical to use electrical energy in straight resistance units for house heating; however, if the electrical energy is put into the motor of a refrigerating unit the refrigerator can be used to pump heat from the cold outdoors so that the total heat dissipated inside of the house is equal to the electrical input to the motor plus the heat which is transferred by the refrigerator. In this way several times the heat equivalent of the electrical input can be obtained.

Direct Drive Refrigerated Truck Machine



Variable speed compressor unit of Motor Vehicle Refrigeration, Inc.

New Meat Truck Has Variable Speed Compressor

LOS ANGELES—Mechanical refrigeration for meat hauls from Phoenix, Ariz., to Los Angeles has been added to the motor freight service of the Los Angeles and Phoenix express line, through the operation of a new refrigerated truck built by the Advance Auto Body Works of Los Angeles, and equipped with a Motor Vehicle Refrigeration unit installed under the supervision of Al. Norris, refrigeration engineer for the latter organization.

The body is 8 ft. high, 8 ft. wide, and 20 ft. long, painted aluminum, has a capacity of 9½ tons, and is mounted on an 8-cylinder Stewart truck. It is the only mechanically refrigerated vehicle in the company's fleet of eight cars operating between Los Angeles and Phoenix, Ariz. The other seven express trucks are cooled by solid carbon dioxide.

Like the Borden ice cream delivery trucks recently built by Motor Vehicle Refrigeration, Ltd., the Los Angeles-Phoenix unit has a compressor which is driven directly by a power take-off from the transmission. However, unlike the Borden trucks where power is taken from the transmission gears by a second drive shaft from which it is belted directly to the compressor, the new unit has a direct drive, "thus eliminating all belts and chains," explains Mr. Norris.

"Power in the Phoenix job is taken from the transmission through a power take-off to a variable speed compressor. The compressor is driven by a power take-off when the truck is on the road and by electric motor for stand-by periods."

Other differences between the Borden trucks and that of the freight line is the use of a 4-in. blanket of Dry-Zero in the latter, for walls and a 4-in. cork flooring. Methyl chloride is the refrigerant used in a direct expansion cooling system, consisting of pipe coils on the ceiling only, instead of walls and ceiling as in the ice cream trucks.

The complete refrigerating equipment does not exceed 750 lbs. in weight. To allow for greater carrying capacity the Motor Vehicle Refrigeration unit is installed under the truck body at the right, as may be seen in the accompanying illustration. In the Borden trucks the unit is in the food compartment. Temperatures vary from 32° to 36°.

The new truck runs on a semi-weekly schedule, making a round trip of approximately 1,000 miles and transporting cut beef and lamb from the Tovrea Packing Co. of Phoenix, Arix., to Los Angeles for distribution, and returning from the California city with Nucoa and mixed refrigerator loads. The meat is hung in the truck as in a cooling room of a storage plant.

FRIGIDAIRE SYSTEM USED IN NEW ICE CREAM TRUCK

STREATOR, Ill.—A new mechanically refrigerated truck has just been placed in service by the Illinois Valley Ice Cream Co., here, to distribute ice cream to its retail outlets.

The refrigerating unit is composed of a Frigidaire compressor and coils, and a T. & J. Vari-Speed Constant Voltage generator. The generator is operated from a power take-off on the transmission of the truck and whether driven fast or slow, the generator supplies a constant voltage that runs the compressor at its normal speed. At night an electric motor drives the compressor. The unit maintains temperatures between zero and 10° below by thermostatic control.

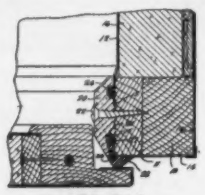
This truck, which is of 600-gal. capacity, makes two trips a week, each trip covering about 400 miles in two days, making stops at towns en route.

The walls of the body are insulated with five inches of Dry-Zero blanket. Exterior panels are of metal on wood and the roof is covered with aluminum Pontex. Doors are 20 by 21½ inches, bevel-type, doubly sealed with Wirf's anti-freeze gasket. The body was made by the Batavia Body Co. of Batavia Ill., and it is mounted on a General Motors chassis.

Review of Latest Patents in the

ISSUED APRIL 12, 1932

1,853,044. REFRIGERATOR CABINET CONSTRUCTION. Harvey D. Geyer, Dayton, Ohio, assignor to The Inland Mfg. Co., Dayton, Ohio, a Corporation of Delaware. Filed April 30, 1928. Serial No. 274,047. 2 Claims. (Cl. 220—9.)


1,853,044

2. In a refrigerator cabinet having a door and door opening therefor, a cabinet inner metal lining having a free edge at said door opening, a facing strip for said door opening, and a rubber sealing gasket sealing the joint between said metal lining edge and strip.

1,853,060. REFRIGERATING DEVICE. Edward H. Jolley, Elizabeth, N. J., assignor of one-half to Harry M. Friend, Newark, N. J. Filed July 17, 1930. Serial No. 468,653. 3 Claims. (Cl. 62—91.5.)

1. A refrigerating device comprising a body and a cover therefor, a container positioned in the body, said container having openings in its side walls near the top and bottom thereof, a refrigerant carrying casing having upwardly and downwardly opening louvers, and means for attaching the casing to the cover.

1,853,127. REFRIGERATOR CAR. George A. Hull, Chicago, Ill., assignor to Equipment Specialties Co., Chicago, Ill., a Corporation of Illinois. Filed Feb. 4, 1929. Serial No. 337,291. 21 Claims. (Cl. 105—423.)

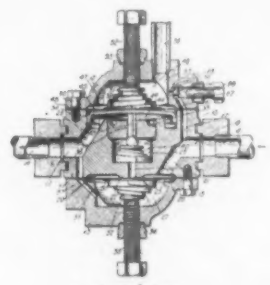
1. In a refrigerator car floor construction, the combination of sills with a layer of heat insulating material carried by said sills, an imperforate layer of waterproofing material carried by said heat insulating material, a layer of flooring above said waterproofing and spacers between said flooring and waterproofing for forming a ventilation conduit between said waterproofing material and flooring, said flooring extending to a point adjacent the oppositely located ice chambers in said refrigerator car and said conduits being open at each end, whereby a circulation of air is permitted from said ice chamber through said conduit.

2. In a refrigerator car floor construction, the combination of sills with a layer of stiff heat insulating material carried by said sills, a layer of waterproofing material carried by said heat insulating material and extending over a threshold, flooring supported above said waterproofing layer and a threshold plate adapted to engage said flooring adjacent said threshold to secure said flooring in place.

1,853,236. METHOD OF CONDITIONING AIR. Clinton F. Shadle, Watertown, N. Y. Filed April 1, 1930. Serial No. 440,810. 5 Claims. (Cl. 183—119.)

1. The method of removing water from a mixture of water vapor and a gas, which consists in passing said mixture at a relatively high lineal velocity and with sudden changes of direction into contact with a refrigerating surface maintained at a temperature near the freezing point of water, but now low enough to cause the deposition of frost, and thereby causing the partial precipitation of moisture from the mixture, draining away said moisture, then bringing the partially dried gas into heat radiating relation with a refrigerated surface maintained substantially below the freezing point of water, with which surface the major portion of the mixture does not contact, and thereby causing the formation and growth of water droplets to a size capable of mechanical separation from the gas, and then mechanically separating such droplets from the gas.

1,853,273. REFRIGERATING APPARATUS. John F. Hoffman, Omaha, Nebr., assignor to Baker Ice Machine Co., Inc., Omaha, Nebr., a Corporation of Nebraska. Filed Aug. 13, 1928. Serial No. 299,393. 15 Claims. (Cl. 62—8.)


1,853,273

1. In refrigerating apparatus including a compressor, a cooling coil, supply and return lines connecting the compressor with the coil, synchronizing means comprising a multiple valve including members respectively controlled by temperature in the return line and pressure in the return line and coil controlling flow through the supply line.

1,853,390. LOW TEMPERATURE DISPENSING CONTAINER. George R. Webber, Augusta, Me., assignor to Polar Vend Corp., Augusta, Me., a Corporation of Maine. Filed March 17, 1928. Serial No. 262,443. 2 Claims. (Cl. 62—91.5.)

1. A low temperature counter display comprising an insulated wall vessel having an open mouth, a combination vessel closure and refrigerant holder comprising a hollow cup-like member set within the open mouth of the vessel and adapted to contain a refrigerant, said holder having an annular side wall depending into the vessel and a gas-permeable bottom of porous material and having a displaceable cover.

1,853,459. AIR CONDITIONING FOR RAILWAY CARS. Edward A. Russell and John Van Vulpen, Chicago, Ill., assignors to Vapor Car Heating Co., Inc., Chicago, Ill., a Corporation of New York. Filed Jan. 12, 1931. Serial No. 508,116. 21 Claims. (Cl. 257—7.)

1. In combination with a railway car, a blower, valved conduits communicating with the pressure and suction sides of said blower and the upper and lower portions of the car, a refrigerating means and a heating means each in circuit with said conduits, and means for controlling the valve conduits whereby cooled air may be continuously circulated from top to bottom of the space within the car, or alternatively heated air may be continuously circulated from bottom to top of this space, and means for admitting outside air in measured quantities to the circulating air stream.

1,853,477. AIR CONDITIONING FOR RAILWAY CARS. John Van Vulpen and Edward A. Russell, Chicago, Ill., assignors to Vapor Car Heating Co., Inc., Chicago, Ill., a Corporation of New York. Filed Jan. 12, 1931. Serial No. 508,154. 19 Claims. (Cl. 257—7.)

1. In a temperature controlling and ventilating system for railway cars, a heating system including radiators in the lower portion of the car, an air duct in the upper portion of the car, ventilators connecting said duct with the outer air, there being a plurality of outlets from said duct to the space within the car, a refrigerating means, an air circulating means, and valved passages whereby air may be circulated by said circulating means either through the refrigerating means and said duct and forced into the upper portion of the car, or circulated in contact with the radiators and exhausted through the duct and the ventilators.

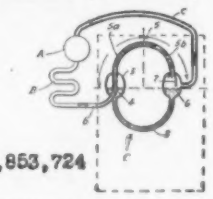
1,853,490. REFRIGERATOR. Nels S. Anderson, Minneapolis, Minn. Filed April 7, 1928. Serial No. 268,236. 4 Claims. (Cl. 62—101.)

1. In combination, a refrigerator adapted to be installed within a building having a temperature greater than the exterior, a cooling radiator disposed within said refrigerator, a cooling reservoir disposed upon the exterior of said building, a pipe connecting the lower end of said reservoir with one end of said radiator, a member connecting the other end of said radiator with the upper end of said reservoir, said member extending within the room of the building in which said refrigerator is installed and being adapted to be heated thereby, and a cooling fluid adapted to circulate through said radiator and reservoir, said exposed member serving to accelerate the circulation thereof.

1,853,644. COOLING UNIT. William Sodemann, St. Louis, Mo. Filed Nov. 22, 1930. Serial No. 497,392. 1 Claim. (Cl. 62—129.)

A cooling unit having a cabinet, a cooling coil positioned in said cabinet and means for the ingress and egress of a refrigerant to said cooling coil, perforated plates positioned in said cabinet, an electric motor secured in said fixture at a distance from said cooling coil, a centrifugal fan operatively connected to said electric motor, a perforated plate positioned in said fixture immediately in front of said centrifugal fan, a frusto-conical element secured in said fixture so as to limit the path of travel of air in said fixture to the central position of said centrifugal fan.

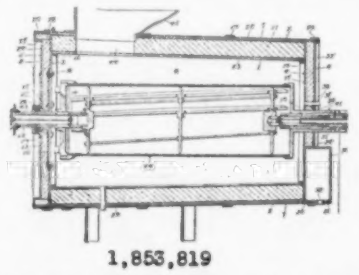
1,853,724. EVAPORATING PROCESS AND APPARATUS. Ransom W. Davenport, Detroit, Mich., assignor to Chicago Pneumatic Tool Co., New York, N. Y., a Corporation of New Jersey. Filed July 24, 1928. Serial No. 294,999. 7 Claims. (Cl. 62—115.)


1,853,724

1. The process of refrigeration which comprises discharging liquid and gas under pressure into a chamber so as to form a frothy mass or emulsion, supplying heat at lower temperatures to said chamber, conducting the overflow from said chamber into an elongate vessel and supplying heat thereto to vaporize the liquid component of the emulsion, reducing the pressure in said vessel to effect release of a continuous stream of vapor, and returning to said chamber the liquid not evaporated in said elongate vessel.

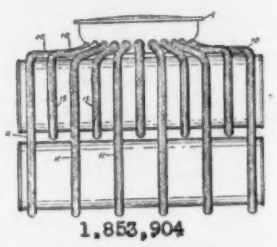
1,853,819. REFRIGERANT CONTAINER. Elton D. Kohr, York, Pa. Filed Jan. 17, 1931. Serial No. 509,527. 12 Claims. (Cl. 62—114.)

1. A refrigerant container for frozen product machines and of barrel-like form comprising an inner cylinder, an outer cylinder,


1,853,819

a front head member abutting the forward end of the inner cylinder and inner face of the outer cylinder rearwardly of the front end of the latter, a rear head member abutting the rear end of the inner cylinder and the inner face of the outer cylinder forwardly of the rear end of the latter, an insulating body interposed between said cylinders and said head members, each of said head members having an axial opening, and a sleeve encompassing completely said outer cylinder and possessing a permanently bright characteristic.

1,853,904. REFRIGERATING APPARATUS. Mahlon W. Kenney, Elmhurst, Ill., assignor by mesne assignments, to Grigsby-Grunow Co., a Corporation of Illinois. Filed July 1, 1930. Serial No. 467,808. 3 Claims. (Cl. 62—126.)


1,853,904

1. An evaporator comprising a dome of two sheet metal members, said members consisting of an open circular pan and cover therefor, a plurality of duct loops depending from said dome, said loops extending radially in a generally horizontal direction from said dome, then extending vertically forming two series of aligned pipes and having horizontal portions joining said vertical portions.

1,854,089. REFRIGERATING BOX. Henry Elmer Willsie, New York, N. Y. Filed Sept. 2, 1927. Serial No. 217,143. 8 Claims. (Cl. 220—9.)

1. A refrigerating box comprising a case consisting of a unitary sheet of metal bent to form the back and sides of the case, the extremities of the sides being bent toward each other in substantial parallelism with said back to form portions of the front of the case and being rebent backwardly to stiffen said extremities, a metal top provided with flanges surrounding its edges, the flanges of said top being telescoped on said case and a lining supported solely from said stiffened extremities in spaced relation to said sides and back.

1,854,090. REFRIGERATION APPARATUS. Leonard Kay Wright, Jackson Heights, N. Y. Filed Feb. 6, 1928. Serial No. 252,304. 15 Claims. (Cl. 62—5.)

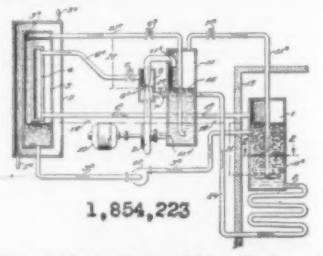
1. A freight car comprising a car body, a refrigerating unit mounted within the car including an air cooled condenser, and means on the car body to deflect air from without the car body into heat exchange relationship with the condenser when the car is moving in either direction.

ISSUED APRIL 19, 1932

1,854,169. CREAM COOLER. Charles W. Fryhofer, St. Paul, Minn. Filed May 27, 1930. Serial No. 456,099. 2 Claims. (Cl. 257—195.)

2. In a cream cooling means the combination of a cream cooling container comprising a cylindrical shell body terminating at its lower end in an annular supporting flange and at its upper end in an open filler throat, a removable cover for the upper end of the body, a bottom having a downwardly turned annular flange contacting throughout its length with and reinforcing the supporting flange of the body, said flanges being apertured to permit cooling fluid ingress, said bottom being centrally apertured, and a fluid circulating hollow column supported upon the bottom and over said central aperture and terminating at its upper end in a closed dome adjacent the removable cover, a plurality of radially disposed equidistantly spaced conduits communicating between the interior of the column and the exterior of the body, and a cooling liquid container having cooling liquid therein in which said first named container is supported upon its flanges with the radial conduits thereof immersed beneath the level of the cooling liquid for the purpose specified.

1,854,223. REFRIGERATING APPARATUS AND METHOD. Bo Folke Randel, San Diego, Calif., assignor to C. A. Dunham Co., Marshalltown, Iowa, a Corporation of Iowa. Filed Sept. 24, 1928. Serial No. 307,979. 13 Claims. (Cl. 62—119.5.)


1,854,223

3. In an absorption refrigerating process the step of passing a mixture of soluble and inert gases through a porous receptacle from which the soluble gas will diffuse at a greater rate than the inert gas, and passing a liquid about the porous receptacle whereby the soluble gas will be absorbed in the liquid.

1,854,278. HEAT EXCHANGE DEVICE. Milton S. Smith, Maplewood, N. J., assignor to Carrier Construction Co., Inc., Newark, N. J. Filed Nov. 27, 1929. Serial No. 410,111. 8 Claims. (Cl. 257—262.)

1. A single-piece fin plate for heat exchange tubes having an opening therethrough to receive the tube and being split from said opening to the outer edge of the plate whereby said plate can be placed on said tube laterally thereof, and said plate having integral parts at the split portion thereof which cooperate to hold the parts of said split portion of the plate in contiguous relation.

1,854,280. VALVE FOR REFRIGERATING APPARATUS. Otto M. Summers, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed Aug. 30, 1929. Serial No. 389,523. 15 Claims. (Cl. 251—129.)

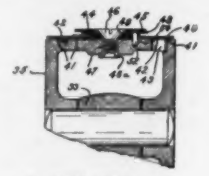
4. A fluid check valve for compressors comprising in combination, an element having an eccentric flange formed thereon, a valve

(Continued on Page 7, Column 1)

Development of Refrigeration

(Continued from Page 6, Column 5)

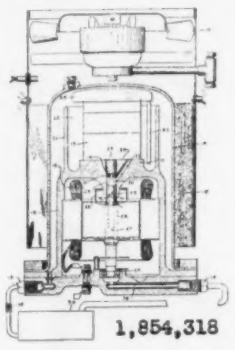
adapted to seat on said flange and having an area exposed to fluid pressure, means for securing said valve concentrically to said



1,854,280

element so that fluid pressure acts on one side of the valve to cause it to turn during normal operation.

1,854,318. COMPRESSOR. Matson C. Terry, Philadelphia, Pa., assignor to Westinghouse Electric & Mfg. Co., a Corporation of Pennsylvania. Filed June 17, 1926. Serial No. 116,620. 20 Claims. (Cl. 230—139.)



1,854,318

1. In a compression mechanism for elastic fluids, the combination of first and second-stage cylinders, a rotor having transversely slidable vanes fitting each cylinder, an intermediate member for joining the two cylinders and for conveying compressed fluid from the first stage cylinder to the second stage cylinder, means for flexibly coupling the rotors together, and a shaft for driving the rotors, the shaft including means for supplying fluid to the first stage cylinder.

1,854,362. THERMOSTAT MECHANISM. William R. Zimmerman, Cleveland, Ohio, assignor to The Bishop & Babcock Mfg. Co., Cleveland, Ohio, a Corporation of Ohio. Filed May 19, 1930. Serial No. 453,599. 9 Claims. (Cl. 297—8.)

1. A thermostatic mechanism comprising a pair of nested cups each with relatively nested lateral walls and reentrant end walls, the nested walls of one cup being spaced from the nested walls of the other cup and being adapted to receive and contain a quantity of thermally expansible fluid in the intermediate space, one of said cups having thin metallic tubular lateral walls, having annular folds therein, and a closure for the space between the walls of the nested cups comprising an annulus bridging the rim portions thereof.

1,854,389. TUBE CUTTER. William E. Arndt, Detroit, Mich., assignor, by mesne assignments, to The Imperial Brass Mfg. Co., Chicago, Ill., a Corporation of Illinois. Filed May 12, 1930. Serial No. 451,637. 2 Claims. (Cl. 81—191.)

1. A tool of the character described, comprising a frame including a handle, a substantially straight bifurcated swinging bar pivoted to the frame; a rotary cutter journaled between the forks of the swinging bar; a seating block bolted to the frame, having a wedge-shaped notch to receive a tube to be cut, said seating block having spaced flanges overlapping the sides of the frame, whereby it is held in fixed relation to the frame; a screw threaded bolt pivoted to the swinging bar between the forks of the latter, and extending through a hole in the frame; an adjustable nut screwed upon the bolt; a spring sleeved upon the bolt, adapted when under tension due to the adjustment of said nut to yieldingly maintain the rotary cutter in contact with a tube during the operation of cutting the tube lodged while in the wedge-shaped notch of the seating block; and means for forcing the swinging bar with its rotary cutter into an open position, upon adjusting the nut to release the tension of the spring sleeved upon the bolt.

1,854,402. REFRIGERATING APPARATUS AND CONTROL VALVE THEREFOR. Justus C. Goosmann, Waynesboro, Pa. Filed July 5, 1928. Serial No. 290,336. 7 Claims. (Cl. 236—92.)

1. In a valve, the combination of a housing, a valve therein, a thermostatic element within the housing adapted to operate the valve in accordance with the temperature of the fluid flowing therethrough, and a balance or counterpressure piston adapted to cooperate with said element to facilitate opening the valve thereby.

1,854,425. CONTINUOUS COOLING ICE BOX. Walter S. Phillips, Lagrange, Ga. Filed March 13, 1929. Serial No. 346,566. 2 Claims. (Cl. 62—55.)

1. In an ice box, a suitable insulated cabinet comprising an ice containing compartment, a storage compartment, a floor in the icing compartment having openings therethrough, an inclined collecting pan beneath the floor having an outlet at its lowest point, a group of runways in the storage compartment, a sliding drawer positioned between a pair of runways, side projections lengthwise of the drawers, supporting wheels positioned on the runways on which the side projections rest, said drawers having limiting water level openings, a drip pan beneath the drawers, and an inclined bottom to the drip pan having an outlet opening from the lowest point of the incline.

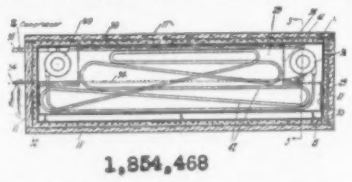
1,854,466. REFRIGERATING SYSTEM. Wilfred Fourness, Pasadena, Calif., assignor, by mesne assignments, to Fourness Development Corp., Ltd., New York, N. Y., a Corporation of New York. Filed May 15, 1926. Serial No. 109,306. 8 Claims. (Cl. 62—126.)

1. A container for defining a space in which a refrigerant can expand, characterized by the fact that supporting means are provided for the container for resting it on a surface, which means are so formed that when a plurality of containers are nested adjacent one another to form a series, the adjacent means have contiguous and contacting surfaces that can be fastened together in any appropriate manner.

1,854,467. AUTOMATIC CHECK VALVE. Wilfred Fourness, Pasadena, Calif., assignor, by mesne assignments, to Fourness Development Corp., Ltd., New York, N. Y., a Corporation of New York. Filed June 8, 1926. Serial No. 114,458. 5 Claims. (Cl. 251—119.)

1. In combination, means forming a pair of connected passageways, an unbiased diaphragm arranged over at least one of said passageways, means defining a restricted space over that side of the diaphragm which is farthest from the passageways, and a closure member of said one of the passageways, said closure member being carried by the diaphragm, and said closure and diaphragm having an aperture for establishing communication between the space and said passageway.

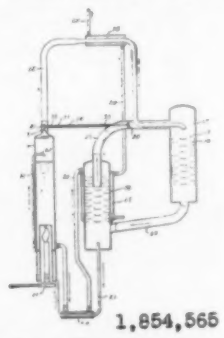
1,854,468. REFRIGERATING CABINET. Wilfred Fourness, Pasadena, Calif., assignor, by mesne assignments, to Fourness Development Corp., Ltd., New York, N. Y., a Corporation of New York. Filed Aug. 3, 1926. Serial No. 126,903. 4 Claims. (Cl. 62—99.)



1,854,468

3. In a refrigerator, means forming a space to be cooled, a pair of closed containers, one adjacent each end of the space, and each having an open flue extending substantially vertically therethrough, and connections between the containers for providing a circulatory space for the refrigerant.

1,854,565. REFRIGERATING APPARATUS. Harry F. Smith, Dayton, Ohio, assignor to



1,854,565

Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed Aug. 30, 1930. Serial No. 478,983. 3 Claims. (Cl. 62—119.5.)

1. Refrigerating apparatus including a first circuit including a generator having means to expel a fluid therefrom, a condenser, an absorber and an evaporator, and ducts for connecting these elements, a second fluid circuit including the absorber and evaporator and rotary means driven by fluid expelled from the generator for positively circulating a second fluid through said second circuit.

1,854,567. APPARATUS FOR MAKING PIPE LOOPS. Otto M. Summers, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Original application filed Jan. 31, 1927, Serial No. 164,880, Patent No. 1,732,343. Divided and this application filed Dec. 31, 1928. Serial No. 329,368. 7 Claims. (Cl. 153—2.)

1. Apparatus for making pipe loops having portions of different cross-sectional contour comprising, a two-part swedging die providing a plurality of die recesses each for receiving a portion of a turn of a pipe coil, a mandrel having provisions for receiving one of the die members so that each turn of the pipe which is wrapped around the mandrel will be received by a die recess in said die member, and means carried by the mandrel for supporting said die member and movable relative to the mandrel to permit retracting said die member from the pipe coil.

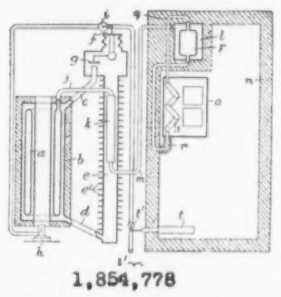
1,854,572. REFRIGERATING APPARATUS. Frank W. Andrews, Fort Wayne, Ind., assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed Sept. 27, 1929. Serial No. 395,589. 3 Claims. (Cl. 62—141.)

1. A water cooler comprising a supporting plate, a refrigerant boiler supported at its end by said plate, said plate being provided with an opening to the interior of said boiler, and a water tube in said boiler having means for sealing said opening, said means being provided with inlet and outlet water connections to said tube, said tube and said means being removable as a unit from said plate.

1,854,589. GAS OR LIQUID STORING MATERIAL. Frederick G. Keyes, Cambridge, Mass., assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Original application filed June 8, 1921, Serial No. 475,855. Divided and this application filed Sept. 6, 1922, Serial No. 586,550. Renewed May 26, 1930. 7 Claims. (Cl. 252—2.5.)

1. A hard porous storing material for gases and liquids comprising calcium chloride qualified by zinc oxychloride.

1,854,778. REVERSIBLE ABSORPTION OR ADSORPTION REFRIGERATING APPARATUS. Jens Orten Boving, Westminster, London, Eng. Filed June 18, 1930, Serial No. 461,973, and in Great Britain Aug. 13, 1929. 12 Claims. (Cl. 62—5.)



1,854,778

1. In a reversible refrigerating apparatus, a generator, a condenser connected to said generator, an evaporator connected to said condenser, a jacket containing a liquid surrounding said generator, a cooler connected to the top and bottom of said jacket, means for heating said jacket, and means interrupting the flow of said liquid between said jacket and said cooler during said heating and permitting said flow after a period of said heating.

1,854,779. REFRIGERATOR CAR. Edmund D. Brigham, Jr., Highland Park, Ill., assignor to North American Car Corp., Chicago, Ill., a Corporation of Illinois. Filed May 14, 1928, Serial No. 277,506. Renewed Jan. 25, 1932. 8 Claims. (Cl. 62—19.)

1. In a refrigerator car, a bulkhead near one end of the car dividing the car into an end chamber for the refrigerant and a larger refrigerator chamber, the bulkhead terminating short of the floor and roof to provide upper and lower air passages between the chambers, a means for holding the refrigerant positioned within the end chamber so as to leave free passages for air circulation therearound, and racks positioned against the floor, side-walls and bulkhead in the refrigerating chamber, each rack consisting of a plurality of spaced slats and stringers on which the slats are mounted, the stringers respectively engaging the chamber walls and bulkhead and holding the slats spaced therefrom to provide air passages between the slats and walls, the air passages behind the side racks and floor racks extending longitudinally of the car.

1,854,853. LIQUID COOLER. Thomas S. Merrylees, Yeadon, Pa. Filed March 29, 1929. Serial No. 350,953. 8 Claims. (Cl. 62—91.5.)

1. A cooler of the character described comprising a closed hollow refrigerating vessel of ceramac material adapted to be traversed by the liquid being cooled, said vessel having capacity to moderate thermic conductivity whereby the liquid is cooled without freezing; and a heavy thermo-insulated jacket completely enveloping said vessel except for a space to accommodate a block of solid carbon dioxide in surface contact with an exposed portion of the vessel.

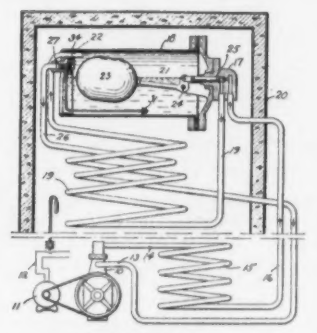
1,854,984. REFRIGERANT. Christian Dantsizen, Schenectady, N. Y., assignor to General Electric Co., a Corporation of New York. Filed Sept. 19, 1930. Serial No. 483,137. 4 Claims. (Cl. 252—5.)

1. A refrigerant consisting of methyl formate and about 5 per cent to 10 per cent by weight of anhydrous low boiling alcohol associated therewith.

1,854,995. WATER COOLER. Alfred E. Nave, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a Corporation of Delaware. Filed Jan. 30, 1931. Serial No. 512,316. 7 Claims. (Cl. 62—141.)

2. In a liquid cooling apparatus, a frame, an evaporator and a refrigerating unit mounted on said frame, and a detachable casing for said frame, refrigerating unit and evaporator.

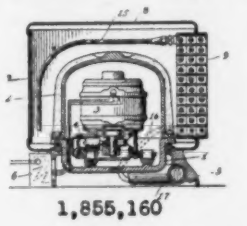
1,854,997. REFRIGERATION. Clyde Edward Ploeger, Evansville, Ind., assignor to Servel, Inc., New York, N. Y., a Corporation of Delaware. Filed April 2, 1929. Serial No. 352,024. 8 Claims. (Cl. 62—8.)



1,854,997

1. Refrigerating apparatus comprising an evaporator, means to withdraw gas from the evaporator, means to withdraw liquid from the evaporator and means acted on by pressure in said evaporator on one side and a spring on the other side for maintaining a constant rate of liquid withdrawal while permitting variable rates of gas withdrawal.

1,855,160. ELECTRICALLY OPERATED REFRIGERATING UNIT. Walter W. Williams, Bloomington, Ill., assignor to Williams Oil-O-Matic Heating Corp., Bloomington, Ill., a Corporation of Illinois. Filed Nov. 11, 1929. Serial No. 406,234. 3 Claims. (Cl. 62—115.)



1,855,160

1. In an electrically operated refrigerating machine, a combined compressor and condenser unit mounted upon a movable base including a compressor, an electric motor for operating the compressor, a pan mounted upon said base supporting said compressor and compressor motor, a dome mounted upon said pan enclosing said compressor and compressor motor, a casing mounted upon said base enclosing said dome and spaced apart therefrom provided with an exit aperture above said dome and an intake aperture at one side of said dome, an apertured condenser supported in and spanning said side opening whereby the heat generated by the operation of the motor and compressor sets up a natural draft through the condenser, and a receptacle for the condensed liquid carried upon said base.